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ABSTRACT

In response to a legislative mandate, this report by the Board of Governors of the California Community Colleges (BGCCC) presents a plan for implementing a system of student matriculation at the colleges and describes the plan's development. Section I introduces the legislative directive to the BGCCC and the appointment and charge of a Task Force on Academic Quality to carry out the mandate. Section II focuses on the development of the Student Matriculation Plan, discussing policy assumptions, the preliminary model, observation site visits, component studies, a cost project study, regional field input hearings, and task force/sub-committee deliberations. Section III contains the proposed matriculation plan, covering educational philosophy, definition, purposes, modifications of the preliminary model, and the following components of the matriculation plan: (1) application for admission; (2) orientation; (3) pre-enrollment assessment and educational planning; (4) academic advisement/counseling and course selection; (5) follow-up on student progress; and (6) institutional research and evaluation. After section IV outlines the costs of implementing matriculation, section V proposes an evaluation study to assess the effectiveness of the matriculation system, and section VI offers recommendations. Appendices include materials related to the task force's activities and an extensive study report on the costs of implementing a matriculation system, and a bibliography. (LAL)

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BOARD OF GOVERNORS
CHANCELLOR'S OFFICE
CALIFORNIA COMMUNITY COLLEGES

Report to the
California Legislature

April, 1984

STUDENT MATRICULATION: A PLAN FOR IMPLEMENTATION IN THE CALIFORNIA COMMUNITY COLLEGES

Report to the California Legislature
April, 1984
by the
Board of Governors of the
California Community Colleges

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I. INTRODUCTION

This report to the Legislature is submitted in response to a directive contained in SB 851, Alquist (Chapter 565, Statutes of 1983) which reads as follows:

> SEC. 12. (a) The Board of Governors of the California Community Colleges shall develop a plan for a system for student matriculation. The plan shall address, but not be limited to, the following:
>
> (1) An application process with exemptions for students when an application is inappropriate.
>
> (2) Assessment testing for reading and mathematics to promote appropriate student placement.
>
> (3) A system of career counseling and academic advisement by credentialed or otherwise qualified counselors and faculty.
>
> (4) A requirement for students to identify educational goals, including, but not limited to:
>
> (A) Transfer.
>
> (B) Associate degree.
>
> (C) Vocational certificate.
>
> (D) An approved individualized program.
>
> (5) Guidelines for students to maintain matriculated status.
>
> (b) The board of governors shall collect data on the student matriculation plan. The board shall report the data, with appropriate recommendations for the implementation of the matriculation system, to the Legislature by April 15, 1984.

Prior to the passage of this legislation, the Chancellor of the California Community Colleges had, in April 1984, appointed a Task Force on Academic Quality comprised of administrators, faculty members, students and trustees from a diversity of community colleges throughout the State (See Appendix A). The charge to the Task Force was to deliberate and make recommendations concerning several interrelated issues which were thought to speak to concerns expressed about the quality of community college education, including the need to delineate the standards of rigor that ought to pertain in courses granted credit for the baccalaureate and associate degrees, to define the role of community colleges in providing remediation, and to develop model processes that assist students in making curricular choices that are appropriate to their needs and abilities and, thereby, help them to succeed in realizing educational goals that are consistent with the mission and functions of the colleges.

Throughout the months of the Task Force's deliberations on all these issues, no issue has been more pervasive and constant than this: How does the community college establish and maintain standards that preserve the integrity of its several educational functions and, at the same time, fulfill its mission to meet the educational needs of all adult citizens who can profit from instruction? In other agenda items to be considered by the Board of Governors in May/June, it is apparent that the Task Force does support actions which would ensure that courses granted credit for certificates and the associate degree and for transfer to baccalaureate degree institutions will be taught at levels of rigor which maintain the integrity of those "collegiate level" degrees. At the same time, the Task Force advances the idea that, given the ex-

tent of skill deficiencies among California adults and assuming the provision of adequate and stable funding, community colleges should continue also to assume major responsibility for providing remediation, the purpose of which is to increase students' skills to a level at which they have a reasonable chance of succeeding in certificate and degree courses. These two challenging functions are, in the Task Force's view, made compatible by the third major area of its inquiry and the topic of this report; that is, a process of matriculation which systematically matches students' needs, abilities and aspirations with the colleges' programs and provides the instruction and other assistance necessary, regardless of entrance skill levels, to succeed at the college level.

II. DEVELOPMENT OF THE STUDENT MATRICULATION PLAN

In July, 1983 staff presented to the Board the Task Force's preliminary model for a student matriculation process and indicated that an observational study would be undertaken, during 1983-84, of various components of the model already in existence at community colleges around the state. The purposes of the study were to refine the preliminary model and develop recommendations to the Board regarding its possible implementation in the California community colleges. SB 851 (Chapter 565, Statutes of 1983), signed in August, 1983, reinforced the intent to conduct the study by directing the Board to "...develop a plan for a system for student matriculation" and report "...recommendations for the implementation of the matriculation system to the Legislature by April 15, 1984." SB 851 appropriated $100,000 for conducting the study.

In October, 1983 and January and March, 1984 the Board received progress reports on the conduct of the observation study and on the Task Force's deliberations on issues and findings which emerged from the inquiry. This final report on student matriculation is intended for the use of both the Board and the Legislature.

A. Policy Assumptions

In its July, 1983 report of the preliminary conceptualization of matriculation the Task Force set out several policy assumptions which were to guide its work in refining the plan. Some of these, such as a possible relationship to student fees and the need to keep the work detached from deliberations about basic funding for community colleges, have, in the meantime, become moot. Other assumptions have, however, continued to guide the Task Force in its development of this report, and bear repeating here.

First, it is assumed that implementation of matriculation must be consistent with the California community colleges' commitment to open access. Matriculation, with its attendant skills assessment, guidance of students into appropriate courses and monitoring of student progress, is not a mechanism for screening out students, but rather one to assure that access to the institution is followed by maximum opportunity for success in its programs.

Second, support for implementing matriculation should in no way be construed as suggesting a need to restrict or reduce the mission of community colleges. Rather, by assisting students to choose programs and services that are appropriate to their readiness and their educational goals, matriculation should result in a clearer delineation of the functions within the mission and a greater opportunity to maintain standards that are appropriate to each.

Third, it is assumed that among the diversity of students who enroll in community colleges are some who would not need to participate in the full matriculation process and, therefore, might be exempted from those components which are unnecessary or inappropriate, given these students' prior educational performance and/or current objectives.

Finally, in deliberating all aspects of the plan, it has been assumed that components should be defined in such a way as to permit sufficient flexibility in the ways colleges implement them, in order to accommodate the diversity of clienteles and unique features of each college's service area.

The matriculation plan presented in Part III of this report is the product of a sequence of related activities undertaken or sponsored by the Task Force. These activities are described below.

B. Development of the Preliminary Model

During the period April-June, 1983 the Task Force's Sub-committee on Matriculation met intensively and extensively to formulate a preliminary model which could be used to introduce the Board, community college constituents and public policy makers to the concept of matriculation and the potential benefits that might be derived from its implementation. From the outset there was an understanding that the preliminary model would need to be studied, evaluated and refined both for its educational effectiveness and for its feasibility and acceptability among community college personnel. In addition to reviewing many of the pertinent publications listed in the bibliography for this report (See Appendix F), the Sub-committee, in elaborating the preliminary model, drew heavily upon a resolution on the "Matriculated Student" developed previously by the Academic Senate of the California Community Colleges. Field testimony during the July, 1983 presentation to the Board was useful in identifying the most controversial aspects of the model and helped to formulate issues which needed to be addressed in subsequent phases of the study.

C. Observation Site Visits

During July, 1983 all community colleges were notified of the intent to select a representative sample of colleges as observation sites to study the feasibility of the preliminary model and were invited to submit preliminary proposals to participate. Colleges that had already implemented components of the model were especially encouraged to apply. Twenty-

three of the 32 colleges that expressed initial interest were then invited to provide more detailed information on their existing components, and their proposals were reviewed by staff and members of the Task Force. Sixteen colleges were selected as observation sites. In addition to considering representativeness in terms of size, location and student composition, the proposal reviewers also decided to include a mix of colleges in terms of how far along they were in their implementation of matriculation components. Thus, one college which had only established a committee to study the feasibility of implementing matriculation was selected in order to learn what issues arise in the initial phases of implementation. (See Appendix B for observation study colleges.)

In August and September, 1983 the observation site colleges were visited for a full day each by teams comprised of staff, members of the Task Force and, in most cases, additional college representatives with experience in administering student services. Interviews were conducted in each case with various groupings of college administrators, instructors and counselors. (See Appendix C for interview formats.) Eleven of the 16 visits were conducted at times when the teams were able to also observe students participating in the colleges' assessment, advisement and/or registration processes.

Observations from the site visits were deliberated by the Task Force and were used to elaborate the proposed plan contained in Part III of this report.

D. Component Evaluation Studies

In addition to the 16 colleges participating in the observation site visits, other colleges were invited to submit proposals for small grants to conduct evaluation studies of the effectiveness of one or another of the matriculation components they had implemented. Six of the nine proposals submitted were selected for funding. They were: Fullerton College, Merritt College, Napa Valley College, Sacramento City College, San Bernardino Valley College, and Southwestern College.

Funds for the grants were provided from the appropriation contained in SB 851.

E. Cost Projection Study

The July, 1983 presentation of the preliminary model contained a section which anticipated the cost factors which were likely to be involved should the Board wish to promote the implementation of matriculation in the colleges. Since the Task Force lacked both the time and the expertise to conduct a thorough cost projection study, staff released a request for proposals to conduct a study to project the statewide costs of matriculation and to advise the Task Force on how best to implement matriculation in light of cost factors. A contract was awarded to MPR Associates of Berkeley to conduct the study. Staff of MPR Associates met on five occasions during the course of their study with Chancellor's

staff, members of the Task Force and other persons involved in conducting the concurrent study of differential funding in community colleges to clarify operational definitions of matriculation components, review data gathering instruments, develop questions to be addressed in the cost projection study report, and review preliminary cost projections. In addition, MPR Associates pilot tested their data gathering instruments at City College of San Francisco and consulted with Los Angeles Harbor College and Southwestern College prior to conducting site visits to 12 representative colleges which agreed to provide the necessary cost data.

Major findings from the cost projection study are presented in Part IV of this report, and the full report from MPR Associates is attached as Appendix E.

F. Regional Field Input Hearings and Conference Presentations

During the Fall and Winter months staff and members of the Task Force made presentations on the preliminary matriculation model and progress reports on the Task Force's deliberations to several meetings and conferences of community college professional associations. Many colleges also held workshops on matriculation for faculty and staff. These occasions invariably provided opportunity for field comment on matriculation which were fed back into the on-going deliberations of the Sub-committee on Matriculation and of the full Task Force. In addition, in January, 1984 a formal progress report on the Task Force's deliberations on and tentative responses to various matriculation issues was mailed to college presidents, academic senate presidents and student body presidents in all colleges together with an invitation to attend one of six regional field input hearings which were conducted in late January and early February. Hearing panels were comprised of staff and members of the Task Force. (See Appendix D for hearing sites and panel members.) While attendance at the hearings varied greatly from one location to another, 93 individuals representing 39 colleges presented formal testimony and numerous other individuals attended the hearings but did not address the panels.

G. Task Force/Sub-committee Deliberations

Throughout the period September, 1983 through March, 1984 the Subcommittee and Task Force continued to meet to receive staff reports on the other dimensions of the study described above and to deliberate and modify aspects of the preliminary model of matriculation. The plan set forth in Part III of this report, together with the proposals regarding costs and an evaluation study, are the results of those deliberations. Recommendations proposed for the Board's approval are contained in Part IV.

III. THE PROPOSED MATRICULATION PLAN

Set out below is the plan for a student matriculation process which is proposed to the Board of Governors for adoption. It is further proposed that the Board take actions to implement the plan in the California community colleges

through a four-year phase-in process beginning in Fall, 1984 and that specified issues and component variations of the plan be studied and evaluated during the phase-in period. (See Part VI of this report.) It is proposed that funding for matriculation during the evaluation and phase-in period should be categorical in nature. By Fall, 1988, however, it is assumed that a modified mechanism to provide basic funding for community colleges will have been adopted and implemented and that on-going funding for matriculation should, at that point, be accommodated within that mechanism.

A. Statement of Philosophy on Matriculation

California community colleges are committed to serving adults of all ages who can profit from instruction, and they have a special responsibility to ensure equal access to postsecondary education. Colleges provide transfer education, employment preparation instruction, continuing and community education and community services, as well as student support services to enable students to participate successfully in the programs of the colleges.

In carrying out these functions and responsibilities, the community colleges have an obligation to assist students in attaining their educational goals by providing information and guidance concerning the choices that are available to them. Students, in turn, have a responsibility to pursue their goals with respect for college standards and a sense of accountability in the use of public funds.

B. Definition of Matriculation

Matriculation is a process which brings a college and a student who enrolls for credit into an agreement for the purpose of realizing the student's educational objectives. The agreement acknowledges responsibilities of both parties to attain those objectives through the college's established programs, policies and requirements. On the college's part, the agreement includes providing an admission process; an orientation to college programs, services and procedures; pre-enrollment assessment and counseling; advisement/counseling for course selection; a suitable curriculum or program of courses; continuous follow-up on student progress with referral to support services when needed; and a program of institutional research and evaluation. On the student's part, the agreement includes expression of at least a broad educational intent at entrance and willingness to declare a specific educational objective within a reasonable period of enrollment, diligence in class attendance and completion of assigned coursework, and completion of courses and maintenance of progress toward an educational goal according to standards established by the college and the State of California.

C. Purposes of Matriculation

The primary purpose of matriculation is to assist students in achieving their educational objectives within the framework of the colleges'

missions. Matriculation does this by matching students' abilities, needs and aspirations with the colleges' several functions and programs, thereby leading students to pursue appropriate options and permitting colleges to maintain standards appropriate to each of their functions.

If students are guided to make educational choices that are appropriate to their abilities and aspirations, they are more likely to make wise choices within the curriculum, and, therefore, more likely to progress toward their educational objectives.

If colleges assist students to make wise curricular choices, there will be greater likelihood of productive uses of existing curricula and more timely development of needed new curricula, and more likelihood that students will avail themselves of the college functions as they were intended to be used.

If colleges guide students to avail themselves of the functions of the college for the purposes intended, there will be a clearer delineation of the functions of the colleges, and an improved opportunity to maintain standards appropriate to each.

If college functions are delineated and maintained according to appropriate standards, there will be an opportunity to better focus the teaching and learning process, thereby improving quality, and improved accountability that permits sound public policy decision-making.

Thus, secondary purposes of matriculation are to help colleges maintain standards appropriate to each of their functions and, therefore, to evaluate and be more readily accountable for the effectiveness of each function.

D. Modifications of the Preliminary Model

As noted earlier, the "preliminary model" of student matriculation, presented to the Board in July, 1983, was widely distributed and discussed during the course of the observation study. As a result, certain changes in terminology have occured. First, the term "model" is replaced with the term "plan" in order to emphasize the intention that implementation of components should accommodate much flexibility in modes of actual operation. The component names have also been modified to reflect more accurately their nature and purposes. The components proposed in the plan are:

1. Application for Admission
2. Orientation
3. Pre-enrollment Assessment and Educational Planning
4. Academic Advisement/Counseling and Course Selection
5. (Post-enrollment) Follow-up on Student Progress, and

6. Institutional Research and Evaluation

In addition to terminology changes, other more substantive modifications of the "preliminary model" are proposed. These are set out below before proceeding to the elaboration of the components of the Plan.

1. *Who Should and Should not Matriculate?*

In the presentation of the preliminary matriculation model, it was proposed that the observational study consider the possible need to distinguish between matriculated and non-matriculated students, the latter being those who would be exempt from the process of matriculation but also ineligible to apply their credit to degrees, certificates or programs offered by the colleges. The rationale offered was that, since matriculation should not reduce the mission of community colleges, there needed to be a way to preserve opportunities for lifelong learning and for initial educational exploration by students who are undecided about their educational objectives. These, in the preliminary model, were to have been the "non-matriculated" students.

The consensus that emerged during the months of study is that, while there is a need to accommodate the lifelong learning function and the value of some reasonable amount of exploration, there is no need to ascribe any different or special status to students who hold such objectives. Rather, since credit students must already formally register in courses and be subject to state and college standards of academic progress, all credit students should be considered to be matriculated and should participate in the model's components of "Application for Admission" and "Follow-up on Student Progress." At the same time, it is also clear that some students need not participate in other components of matriculation (e.g., assessment, orientation or pre-enrollment counseling), not because of their educational intent or because they are undecided about objectives, but rather because the stated purposes of matriculation would not be served by their participation. That is, the student would not derive benefit from participation, and the college would not be hampered by the student's nonparticipation sfrom maintaining standards in courses and programs.

Therefore, it is proposed that, for the phase-in and evaluation period, participating colleges assume generally that all students new to the college and desiring to enroll in credit courses will participate in all components of matriculation unless they meet stated criteria for exemption from orientation, assessment and/or pre-enrollment counseling, which criteria are consistent with the purposes of matriculation. Colleges would include these exemption criteria in their written plans for implementing matriculation during the phase-in and evaluation period. The viability of exemption categories designated by colleges would then be assessed as part of the evaluation study to determine whether there is a need for statewide exemption criteria to be established.

Examples of appropriate criteria or categories would be ones which exempt students who:

a) Document prior completion of an associate or higher degree from participation in orientation and pre-enrollment assessment and counseling;

b) Can provide scores from recently administered, comparable or equivalent tests from pre-enrollment assessment testing; and

c) Propose to only enroll in courses for which there are no skills pre-requisites from orientation, assessment, and mandatory advising.

Examples of criteria or categories which would not be appropriate would be to exempt students who:

a) Enroll only in evening classes;

b) Enroll in fewer than some specified number of units;

c) Do not wish to participate;

d) Are undecided about their objectives; or

e) Do not intend to earn a degree or certificate.

These latter categories, while perhaps more administratively manageable, are arbitrary with respect to the major purposes of matriculation. For example, a student who wishes to enroll only in one evening class in English 1A in order to "try out" college is probably in as great a need of guidance and assistance as the full-time day student who plans to complete a certificate program in computer-assisted design.

It is assumed that the proportion of new students exempted from one or more pre-enrollment components of matriculation would vary significantly from one college to another, depending on the characteristics of student clienteles in the service areas. Some colleges may exempt few or no students, while others may exempt a third or more of their new students. For purpose of the cost projection substudy, it was estimated that 20 percent of new students, statewide, would be exempted.

2. *Declaration of Student Intent at Entrance*

The preliminary model also assumed that students who did matriculate would be able, at entrance, to declare a general intention to pursue a program in one of five categories consistent with the colleges' major functions. The observation study revealed, however, that a large percentage of students enter open door colleges lacking adequate background and information upon which to establish even a general educational objective. To force them to state one at entrance

would, it was said, result in false declarations by students and utter confusion among those who would be assisting students in meeting their objectives. Further, the determination that all students should be considered matriculated (even though some might be exempted from specific components) reintroduced the need to accommodate among the declaration categories some objectives that are not necessarily defined in terms of the colleges' functions or programs; for example, enrollment in individual courses for avocational, continuing education purposes.

Still, since important purposes of matriculation are to inform students of the educational options available to them and to assist them in pursuing educational goals that are in line with those options, it is essential to have at least some idea of students' intentions at entrance.

Therefore, the revised model requires that, instead of eliciting the declaration of an educational objective, the "Application for Admission" should include items designed to ascertain the extent to which students do possess a clear-cut educational objective, including objectives not defined in terms of college programs, and also permit students to indicate that they wish to be considered undecided or undeclared for the time being. It would then become the responsibility of the college, in its provision of subsequent counseling and advising, to assist the student in translating a general, tentative or undeclared intent into a more specific educational objective that is consistent with the functions of the college. Students who lack clearly defined objectives at entrance would be required by the model to see a counselor at least once each term until an objective is declared. The Task Force believes that declaration of an objective should be made prior to the accumulation of 30 units. However, rather than stipulating that as a maximum at this point and imposing some penalty for those who exceed it, it is recommended that the evaluation study monitor the patterns exhibited by students in coming to a declaration and recommend later whether there is need to establish and enforce a maximum.

3. *Institutional Research and Evaluation*

While the preliminary model implied throughout that the student information systems needed to monitor student progress would also provide the capacity to evaluate matriculation processes and plan curricula, there was no explicit inclusion of an institutional research or evaluation component in the model. The observation study made clear the need to include such a component and indicate what purposes it can serve, especially during the evaluation study period.

E. Components of the Proposed Plan

Components identified as most likely, in combination, to achieve the purposes of matriculation and, therefore, those that would be required to be provided by colleges implementing the full plan during the evaluation study phase, are listed in the preceding section D, "Modifications of the Preliminary Model" (page 11).

Each component is elaborated separately below. It is assumed that, for purposes of the evaluation period, considerable latitude would be allowed to participating colleges in making components operational and, as necessary, rearranging their sequence to meet the needs of local clienteles. Variations would be studied during the evaluation period to determine the relative effectiveness of each in accomplishing the purposes of matriculation.

1. *Application for Admission:* A basic application form should be completed by all new applicants to the college. It should provide information that: a) is required for the state-level student information system, and b) is required by the college to facilitate the efficient completion of subsequent steps in the matriculation process, the latter including items to ascertain students' or educational intent (when it is known) and the extent to which the student is committed to that intent. It should also include items that allow colleges to ascertain whether a student should be exempted from one or more components of matriculation and whether he or she may need a type of assessment that is alternative to the general assessment modes (e.g., for Limited English Proficiency or diagnosis of learning disabilities). Early identification of students' need for alternative assessments is important, both because it eliminates unnecessary duplication of assessments, and because it minimizes the chances of a student being mis-diagnosed as a result of inappropriate assessment methods. In addition, the application submission process would be the logical place to gather transcripts of students' prior education which can be used subsequently in assessments and advising and counseling. Colleges should establish policies regarding when and whether transcripts are required and for which students. Appropriate data from the application for admission and transcripts should be entered into a computerized student information and records system as the baseline information upon which to build a longitudinal record of student performance and progress. Finally, it is important for colleges to make every effort to encourage the early filing of applications for admission in order to effectively provide the subsequent components of the matriculation process.

Discussion: In general, the observation study uncovered little evidence to suggest that the application for admission component would be difficult to implement. All colleges currently require an application; however, not all of them enter information from the application into permanent student files, and if they do, it is not necessarily available in a useful form to counselors and advisors in their subsequent dealings with students. Further, while existing application forms contain items that might be used for determining students'

educational objectives or general intent, they typically are not now analyzed to classify students for the purposes of advising or monitoring progress. These problems could be overcome with the level of funding proposed for admissions and records shown in Part IV of this report.

One issue regarding the application for admission bears careful examination during the pilot study, however. The facts that: a) the application provides information that is essential for determining whether and how students should proceed through the rest of the matriculation process, and b) the conduct of the subsequent components can itself require significant time prior to commencement of classes, means that students might need to file their applications well in advance of registration. In recent years, community colleges have gone to great lengths to simplify and make more flexible the procedures for registering for classes. Indeed, some colleges indicate that a majority of their current students did not make initial contact with the college until a few days prior to the start of classes. Some would argue that permitting such late decisions to enroll has been an important factor in attracting the diversity of students who attend community colleges, particularly, perhaps, those who might not have, by virtue of backgrounds and prior experience, considered themselves to be "college material." The Los Angeles District's "Project Access" illustrates that by combining the application, orientation and assessment components into a single session this timing problem is minimized. Colleges participating in the evaluation study are encouraged to design their implementation plans in such a way as to ameliorate this problem.

Even so, the evaluation study should carefully examine: a) the extent to which the implementation of matriculation requires colleges to establish earlier deadlines for applying; and b) the extent to which earlier application deadlines affect enrollment in general and the enrollment of any certain constituencies in particular.

2. *Orientation* programs should be required of all new students except those to whom an approved exemption criterion pertains. The purpose of orientation is to acquaint new students with the colleges' functions, programs and services, performance expectations and procedural requirements. It is an important first opportunity to make known to students the options that are available to them in the college. Orientation programs may otherwise vary in format, length and size of student audience, based on local needs and conditions. So long as they begin prior to registration, orientation programs need not necessarily fall between application and assessment components, and may be combined into a session with other components, as in the case of Los Angeles' "Project Access."

3. *Pre-enrollment Assessment and Educational Planning:* The major purposes of this component are: a) to gather information about a student that can be effectively used in subsequent advisement about educational objectives, course selection, academic progress and general development, and b) to provide a knowledge base about students and their educational goals which, in the aggregate, is useful to the college in planning and evaluating curricula.

The plan would require that pre-enrollment assessment include, at a minimum:

a) Assessment for competency levels in language skills (i.e., reading, writing, or both) and mathematics;

b) Assessment (by paper-pencil instrument and/or by qualified professional) of:

1. aptitudes, interests, and skills not assessed in (a);

2. educational aspirations and objectives;

3. study skills;

4. the need for referral to other specialized support services (e.g. financial aid, EOPS, child care, career center, etc.); and

5. the need for referral to additional specialized assessment that is supplemental to the basic college assessment and counseling process (e.g. for the limited English speaking or those with learning disabilities).

In addition, colleges should consider gathering and analyzing transcripts of prior academic work of at least some students for use in assessing their skills and abilities. This would appear to be especially appropriate for those whose prior work, whether high school or college, was done within five to ten years prior to enrollment.

Discussion: Of all the components of the plan, "Pre-enrollment Assessment" is the most widely supported as valuable; and in some form--usually incomplete by the plan's definition--it is also the most widely practiced currently in the community colleges. All 16 of the observation site colleges administer one or more skills tests to at least some categories of students for purposes of advising and/or course placement; and the most recent compilation of college assessment practices published by the Learning Assessment and Retention Consortia (LARC) confirms the observation study finding that colleges are rapidly expanding their testing programs to become "college wide," both in the sense that all or nearly all new students participate and in the sense that assessed skills levels are increasingly being adopted as advisory or mandatory prerequisites for courses throughout the curriculum.

At the same time, the "Pre-enrollment Assessment" component generates the largest number of controversial issues regarding the matriculation plan.

Chief among these issues is the concern that assessment practices be comprehensive enough to assure that they support, rather than interfere with, equal access and opportunity. That is, while the testing of language and computational skills is central to assessment, there is widespread agreement that assessment based on skills test scores alone does not adequately account for the range of abilities and aptitudes that enter into students' chances for success in the classroom. Further, the admitted limitations of skills tests, in terms

of their accuracy for ethnic and language minority groups, continues as a major educational debate. In addition, even some students who perform well on skills tests may "fail" in the classroom due to rusty study skills or a need for other services such as financial aid. Therefore, the plan would require that the assessment component include, at minimum, some means of assessing the other dimensions of student abilities and needs, in addition to the testing of competencies in basic skills. At present some colleges provide these additional assessments by means of standardized assessment batteries such as the Comparative Guidance and Placement (CGP) program; others by means of counselor assessments, and others not at all.

A second issue related to the "Pre-enrollment Assessment" component has to do with the selection and validation of instruments used for assessment. Findings from the observation study were consistent with the LARC report and a recent monograph by Rounds in revealing that the existing range of tests in use in community colleges is wide indeed. In the area of English alone, some colleges require reading tests, others various language usage tests and others writing samples. While an apparently increasing number are moving toward use of commercial, standardized tests, many others utilize tests developed by local departmental faculties, especially in mathematics. And whether the tests used are standardized or "home grown,: only a very few colleges have systematically evaluated whether the skills measured by the tests are significantly related to the skills required for successful performance in the classroom. This variability in current practice exacerbates the general concern about the adequacy of assessment based solely upon skills tests and raises as well the public policy question of whether varying measures and resultant prerequisites interfere with equal access and opportunity for students across colleges in California. The plan does not propose an immediate solution to this issue of test diversity and validation for at least two reasons. First, nearly all the colleges that have initiated comprehensive assessment programs are already grappling with the questions of appropriate tests and test uses through their own, local decision making processes. Second, the observation study could not attempt the complex task of evaluating the validity and appropriateness of existing tests; therefore, any effort to narrow the range or establish statewide standards at this time would necessarily be arbitrary. Therefore, the plan proposes that during the three-year evaluation phase, colleges be allowed to use whatever tests they deem appropriate. A major dimension of the evaluation, then, will be to systematically examine existing tests and make recommendations regarding what needs exist, if any, for state level test selection standards, including the possible required use of a statewide, standardized test battery.

The third major issue related to the "Pre-enrollment Assessment" component concerns how to accommodate, in a college-wide, new student assessment program, the special assessment needs of certain groups of students such as those with learning or other disabilities (e.g. blindness) and those for whom English is a second language. Such students, if not identified prior to skill testing might, at best, be subjected to duplicative assessment testing or, at worst, be grossly misdiagnosed by college-wide assessment tests. The observation study revealed that this problem exists now, even without implementation of the full matriculation plan; and even the most ingenious methods for early identification of such students are imperfect. Ideally, the Application for Admission would contain items to identify most such students and would trigger

referral to alternative assessment modes. It is necessary, however, that some means also be provided in the "Pre-enrollment Assessment" component to identify and refer students not identified earlier to appropriate assessment.

4. *Academic Advisement/Counseling and Course Selection* is the process of using initial assessment information, together with institutional policies and procedures, to advise new students about the options available to them and the requisite skill levels for success in each. It results in course selection for the first term of enrollment and should be the beginning of longer term educational planning to develop and attain an educational objective. It seems likely, from what is known about the skill levels and the lack of goal clarity among many new students, that this initial advisement session should be individual. For the period of the evaluation study, however, colleges are encouraged to arrange for first-term advisement and course selection in whatever ways will adequately inform students of the results of their assessments and result in the selection of courses and other services that are appropriate to their abilities and needs. This could include small group sessions.

   It seems likely, also, that the initial advisement session, since it involves interpretation of test results and other assessments, and initiates an educational plan, should be conducted by credentialled counselors. Again, however, colleges in the evaluation study are encouraged to devise cooperative arrangements, under the direction of qualified certificated personnel, that utilize the skills of instructors and/or paraprofessionals as well as counselors to provide students the necessary information and assistance.

Discussion: All aspects of the matriculation study--including the observation site visits, the work of the cost-projection study staff and the comments of participants in the field hearings--revealed two major issues regarding the Academic Advisement/Counseling component which need to be further elucidated and resolved in the evaluation phase. First, no college is currently staffed to provide the level of individual attention to students' needs that is required by matriculation without significant redefinition of roles and reassignment of personnel and priorities. Second, colleges vary greatly in whether they use assessment results (especially skills test scores) to place students in courses on a mandatory or advisory basis.

If one assumes that a large proportion of students need the assistance of a trained, qualified counselor, at least upon their initial enrollment, then most colleges have not been adequately staffed for a decade or more to provide such assistance to all new students. Since Proposition 13, further, counseling staffs have been reduced and/or reassigned to the classroom, thus exacerbating the problems in any attempt to reinstate a more structured matriculation process. The recommendations from the cost projection study, contained in Part IV of this report, assume a need to reinstate and expand counseling positions in order to carry out this and other components of the matriculation process. That is, no doubt, necessary to some extent. At the same time, colleges that participate in the evaluation study should use this opportunity to delineate the roles in providing students assistance that can be appropriately played by counselors, instructors and paraprofessionals, and should test crea-

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tive partnerships among them in implementing this and other components of the plan. In the discussion of the Follow-up on Student Progress component which follows, some examples of the ways counselor and faculty roles have been delineated in other states are provided.

The mandatory vs. advisory course placement issue also deserves careful study during the evaluation phase. The observation study revealed that, among colleges that have implemented broad scale assessment testing, the largest number currently use the results for placement only into English and mathematics courses and their attendant levels of language or computational skills remediation. In some of these cases, the placement is mandatory; in others, it is advisory or voluntary. In either case, students may typically enroll in the offerings of other departments regardless of assessment findings. Other colleges use assessment results for placement in courses throughout the curriculum. In most of these cases, course placement is voluntary, but in a few others it is mandatory. It is recommended that during the period of the evaluation study, colleges be able to pursue whatever policy regarding mandatory or voluntary placement they feel is appropriate and defensible. The study should, however, examine the viability of tests and other assessment methods in predicting student performance and should examine also whether varying placement practices result in systematic, if inadvertent, discrimination against any definable group of students.

5. *Follow-up on Student Progress.* Once a student has participated in initial assessment and advisement and has enrolled in courses, it is important, for both the student's and the college's purposes, to periodically follow-up on the student's academic performance while he or she is progressing toward completion of an educational objective. Thus, the plan proposes that the computerized student record, triggered by information from the initial application for admission and from assessment processes, and supplemented by grades earned in courses, be used to identify and periodically provide guidance and assistance to students. Specifically, the plan would require that students whose records indicate that they: a) have not declared an educational objective; b) are enrolled in remedial courses; or c) have been placed on academic or progress probation (as defined by existing state standards of academic progress) would be required to have at least one counseling/advising session each term. These sessions, in addition to assisting the student directly, could result in referral to career guidance sessions, tutorial assistance or a variety of other services, depending on the student's needs.

   Additionally, colleges participating in the evaluation study might choose to use the same computerized student record system to identify and provide other specialized assistance to other categories of students. For example, students who have indicated an intention to transfer or who have performed well in transferable courses could be invited to participate in special sessions designed to provide information about transfer options and requirements. Similarly, students in particular vocational fields could be apprised of special assistance designed to meet their needs.

At least some of the colleges that participate in the evaluation phase should also implement an "academic alert" or "early warning" system for first-term students, as a part of their follow-up on student progress. This computerized system, nationally publicized as part of the reforms at Miami-Dade Community College in Florida, uses progress and attendance reports supplied by teachers to generate variable pre-written letters to students apprising them of their progress in the middle of first term courses, and referring them to specialized assistance. Although this support mechanism is most helpful in identifying students who are having difficulty part way through the term, it can also be used to identify outstanding students and give them messages of encouragement.

Discussion: The primary issue related to the provision of Follow-Up on Student Progress is much the same as discussed above under Academic Advisement/ Counseling and Course Selection; that is, how should or can colleges staff the component. Again, colleges are encouraged, during the evaluation phase, to forge and test creative partnerships among counselors, instructors, and other staff to provide the level of attention required, bearing in mind that certain counseling functions (as opposed to information providing) should be performed by properly trained personnel. At Miami-Dade, for example, "...new students who have declared a major and do not have basic skills deficiencies, as well as continuing students who have declared a major and are not in academic difficulty, are referred to the teaching faculty for advisement. The undecided student, the student with basic skills deficiencies, the new transfer student and the continuing student in academic difficulty are seen by counselors..." Using a computerized system of student progress, such identification of students by California colleges could result in a similar division of labor.

6. *Institutional Research and Evaluation.* The presentation of the preliminary model implied throughout that the overall purposes and effectiveness of student matriculation as well as each of its components would be subject to evaluation. Additionally, that presentation indicated that systematic assessment of students' skills, guidance of students into curricula appropriate to their needs and abilities and monitoring students' progress toward attainment of an educational objectives, and the incorporation of all these elements into a longitudinal student data base, would provide colleges with a wealth of new information that is useful in planning, monitoring, and evaluating their programs and services. The preliminary presentation did not, however, explicitly include any mechanism for accomplishing this end. In the observation visits, field hearings and deliberations of the Task Force itself, it became clear that a capacity to conduct institutional research and evaluation based on the data yielded by matriculation is so central to the whole concept that it needed to be incorporated as a component into the plan itself.

Colleges need to know whether the matriculation process does indeed significantly improve the students' chances for attaining desirable educational objectives. They need to know whether assessment in general and their assessment tools in particular are valid and fair predictors of students' performance in the classroom. They need to

know whether their remedial offerings are building students' skills and whether more frequent and directive counseling and advisement yields greater retention. Such inquiries are basic even if matriculation were to be implemented on a single campus. So when one considers that implementation of matriculation is being proposed as state policy and involves the outlay of substantial resources, the inclusion of a component to evaluate its effectiveness becomes essential. Therefore, the cost projections for matriculation in Part IV of this report include consideration not only of the costs of establishing and maintaining the level of information systems required by matriculation, but also of the staffing resources to conduct the research aspects of the plan for use at the local level as well as for participation in the state level evaluation studies. Specifically, it is proposed that colleges should provide 1/2 FTE professionally trained researcher, increased data processing personnel and 1/4 FTE clerical support for every 10,000 students enrolled. Some of the research questions that would be pursued are set out in Part V of this report.

IV. COSTS OF IMPLEMENTING MATRICULATION

The presentation of the preliminary model anticipated that statewide implementation of matriculation would require a substantial infusion of new resources into the community colleges and proposed that the 1983-84 observation study include a contracted sub-study to determine:

(1) What would it cost to implement a matriculation plan statewide? and

(2) How might such a plan best be implemented?

To answer these questions, staff contracted with MPR Associates of Berkeley to conduct a study with the following specific objectives:

- define the primary cost components of the matriculation system;
- define standards for the range of acceptable levels of resources required to carry out each component of the matriculation process satisfactorily;
- using data collected from a representative sample of colleges, determine the costs of implementing a statewide matriculation system, distinguishing between non-recurring start-up costs and on-going operating costs;
- from the sample data, determine existing resources that are presently or could be devoted to matriculation services;
- assess the effects of a matriculation system on district revenues;
- consider different strategies for implementing matriculation.

The full report by MPR Associates is attached as Appendix E. The reader may refer to it for answers to methodological and other questions which pertain to the findings, conclusions and recommendations which are summarized in the statements below. In referring to the full study report, bear in mind that the specific operational definitions of matriculation components therein were required in order to derive cost estimates. For example, the revenues generated by the cost projection formula to allow colleges to provide follow-up services for continuing students other than those in academic difficulty were costed out as if colleges would provide one hour of assistance each term to groups of four students. In fact, colleges would be allowed much flexibility in the ways they actually implement this and other component features.

Summary Findings and Conclusions of the Cost Projection Study

1. Each of the major components of matriculation has been well developed in one or more community colleges, but no college has developed the full spectrum of matriculation components to the level prescribed in the model. Therefore, each of the components is feasible. On the other hand, no college could implement the full model without additional resources.

2. The total cost of matriculation, statewide, is approximately $132 million. However, about 4/5 of those costs, or $105 million, are already being allocated to existing, matriculation-related activities. Therefore, the new or "net" costs of implementing matriculation in all the California community colleges would be approximately $26.5 million. (The study report cautions that the potential margin of error in the statewide estimate of net costs suggests that the actual cost is between $22 million and $32 million.) Table 1 displays the total costs, existing (1982-83) expenditures, and net or new costs by each expenditure area in the plan.

   NOTE: The terminology for expenditure areas is not identical to the plan's components; but all activities of the components are included. For example, institutional research costs are included in Admissions and Records and the non-testing dimensions of assessment are included in Counseling.

Table 1
MATRICULATION SYSTEM SUMMARY COSTS

Activity	Estimated Total Cost	1982-83 Expenditures	Estimated Net Cost
Orientation	3,189,172	1,224,431	1,964,741
Testing	2,952,731	392,497	2,560,234
Counseling (registrants only)	61,251,794	43,928,829	17,322,965
Admissions and Records	61,209,012	56,583,548	4,625,464
Administration	3,304,372	3,304,372	0
Total	131,907,081	105,433,677	26,473,404

3. Given the estimated cost of statewide implementation, if matriculation, through improved placement and retention, results in an increase of no more than 2 percent of total fall and spring enrollments in community colleges, it will pay for itself in terms of increased ADA.

4. In addition to the on-going implemention costs, the study revealed that some colleges would have significant one-time costs to establish the level of information systems and data processing capacity that the matriculation process requires (i.e., purchase of new hardware and software). Since this need differs greatly among the colleges, it was not sensible to include these costs in the per student/per campus calculation of costs. Therefore, the study recommends that the State establish a separate fund to which colleges would submit proposals for purchasing hardware and software necessary to implement matriculation. It is estimated that the fund would need roughly $5.5 million for statewide implementation.

5. Since the actual benefits of implementing matriculation remain uncertain, the study recommends that the Board proceed with implementation of the full plan on a pilot basis in 10 to 20 colleges, with the evaluation study paying particular attention to improving cost estimates and workload standards as well as to the educational benefits of matriculation.

6. The cost projection study was confined to the direct costs of matriculation. However, the report suggests that implementation of matriculation might result in improved identification of the special needs of more students and referral of those students to appropriate support programs and services. Should this result in a significantly heavier workload in those programs and services (e.g. financial aid, tutorial centers, EOPS, etc.), there could be second level or indirect costs related to the implementation of matriculation. The report proposes that the evaluation study monitor such "spin-off" cost increases.

V. THE EVALUATION STUDY

The Task Force and staff are persuaded of the educational value of student matriculation on the merit of its logic alone; and they believe that full and thoughtful implementation by colleges of the matriculation plan will, in fact, result in significantly improved opportunities for student success and realization of worthy educational goals. At the same time, the proposal that the Board consider and try out the Matriculation Plan as eventual state policy, and the fact that its implementation would require substantial new resources, each demand that the matriculation plan be subjected to rigorous evaluation over a long enough period of time to ascertain its actual benefits and costs. Therefore, it is proposed in the recommendations in Part VI that legislation to initiate implementation of matriculation in Fall 1984:

1. require that the colleges funded for full or partial implementation in 1984 participate in a comprehensive, three-year evaluation study administered by the state; and

2. contain an appropriation to fund both contracted research and staff in the Chancellor's Office to coordinate and oversee the evaluation study.

The primary or over-arching purpose of what would necessarily be a study design with several controlled dimensions would be to determine the extent to which the matriculation plan, and each of its several components, contribute to improvement of students' retention and performance in community college courses and/or to their attainment of educational goals that are compatible with the colleges' missions. A second major purpose would be to ascertain the extent to which the outcomes of matriculation permit colleges to improve their planning, evaluation and provision of curricula. Internal to these broad questions, however, are many other research questions which need to be built into the overall research design and the findings from which are valuable to educational decision-making in their own right. Most of these have been noted in preceding sections of this report. They include:

1. What performance/enrollment patterns are exhibited by students who are exempted from components of matriculation? What do the findings suggest regarding the viability of the exemption criteria applied by colleges?

2. What are the patterns exhibited by students in declaring educational objectives? What are the objectives they hold and how are these related to the colleges' stated functions?

3. How effective is matriculation in identifying students in need of special assessment or services?

4. How does implementation of matriculation affect the way colleges organize and provide admission and registration services? Enrollment in general? Enrollment of definable populations in particular?

5. What are the various ways colleges organize and provide pre-enrollment matriculation components? Are some more effective than others, in terms of student retention, performance or satisfaction?

6. What methods are used to assess dimensions of students' skills other than in math or English? Are they differentially effective?

7. What instruments are currently in use to assess math and language skills? Are they effective and valid for the purposes they are used? Is there a need for statewide standards in test selection and use in order to maintain equal access and opportunity across colleges?

8. What personnel provide advising and/or counseling for what students? Are the various practices significantly more or less effective as measured by students' performance and attainment of objectives? What legal or policy implications do these findings have?

9. How do colleges establish standards or prerequisites for advisory or mandatory placement of students in the curriculum? For what areas of the curriculum do these standards apply? Are the standards or prerequisites adequately validated?

10. When course selection is advisory or voluntary, what patterns do students exhibit in following the advice? Are subsequent patterns of retention and performance related to whether students follow the advise they receive?

11. What are the best workload standards for measuring the costs of matriculation? What are the actual costs of various implementation strategies and how are these related to effectiveness in terms of student retention, performance and attainment of objectives?

12. What are the "spin-off" costs, such as in remedial offerings and special services, that result from more systematic identification of students' needs for placement or referral?

These questions are illustrative of the scope and complexity of the proposed evaluation study. The Board should direct the staff to develop, with the assistance of the Task Force and research personnel from the colleges, an overall study design and, as necessary, requests for proposals to conduct portions of the study.

VI. RECOMMENDATIONS

On the basis of findings from the observational study and recommendations of the Task Force on Academic Quality, it is proposed that the Board take the following actions:

1. Adopt the Student Matriculation Plan presented in Part IV of this report, including all aspects of the component descriptions, and commend it to all community college districts to study and implement as soon as possible;

2. Sponsor legislation which would:

a) contain an appropriation of $6.8 million to fully implement the Plan in 12 community colleges and to implement selected components in an additional 10 colleges in Fall term, 1984;

b) provide for additional appropriations in FY 1985, 1986 and 1987 sufficient to continue funding for colleges which implemented earlier and to phase-in full implementation of Student Matriculation in up to 28 additional colleges each year;

c) require that the 22 colleges funded to implement the full or partial plan in 1984 participate in a comprehensive, three-year evaluation study as described in Part V of this report;

d) contain an appropriation of $660,000 to fund contracted research on selected dimensions of the evaluation study over the 3 year period September 1984 to July 1987 and to provide in-service training to prepare additional colleges to implement matriculation in 1985 and 1986;

e) contain an appropriation of $140,000 in 1984 and continued funding through 1982 to provide staff in the Chancellor's Office to assist colleges in the implementation of matriculation, administer and monitor the use of funds provided and coordinate the evaluation studies;

f) contain an appropriation of $2.4 million to establish the California Community College Student Information System Upgrade Fund to which colleges could apply for purchase of computer hardware and software necessary to implement the Student Matriculation Plan; and

g) require that the results of the evaluation study be reported to the Board and the Legislature in January 1988 and that the report include recommendations to codify the permanent requirements for student matriculation and to accommodate its future funding within the basic funding mechanism for community colleges.

In anticipation of the passage of the legislation proposed above, the Board should, in addition:

3. Direct the Chancellor to:

a) appoint a broadly representative, college-based advisory committee to oversee the implementation of student matriculation;

b) develop a plan for allocating funds to colleges to implement matriculation;

c) design necessary application and accountability procedures for colleges during the four-year phase-in, as well as regulations to implement the legislation; and

d) develop an overall research design for the evaluation study and proceed with necessary arrangements for conduct of the study.

APPENDIX A

TASK FORCE ON ACADEMIC QUALITY

Roster of Members

Wallace Albertson, Trustee
Los Angeles Community College District

Iril Al'Uqdah, Student
City College of San Francsico

Milton Bard, Instructor
Hartnell College

David Bender, Jr., Trustee
Ventura County Community College District

Dr. Philip Borst, President
Fullerton College

*David E. Brown, Trustee
Los Rios Community College District

Joe Cortez, Instructor
Los Angeles Trade/Technical College

*Carmen M. Decker, Instructor
Cypress College

*Dr. Margie Dominici
Dean of Admissions and Records
Shasta College

*Dr. Alfred P. Fernandez, Chancellor
Ventura County Community College District
Chair of Matriculation Subcommittee

Phil Hartley
Associate Professor
Chaffey College

Annette Hayes, Director
Vocational Education
Saddleback Community College

Jonnah J. Laroche, Instructor
Allan Hancock College

*John McFarland, Instructor
Sierra College

*Kathy Neal, Member
Board of Governors
Los Angeles

Rosa Perez, Vice President
Student Services
City College of San Francisco

Olive P. Scott, Vice President
Instructional Services
Cerritos College

*Dr. Ed Shenk, Associate Dean
Student and Career Development
Napa Valley College

*Steve Steuart, Student
Fresno City College

Dr. James C. Wyatt, Vice Chancellor
San Mateo County Community College District

*Dr. Richard D. Yeo, Executive Dean
Chabot College

Joseph M. Zagorski, Vice President
Instructional and Student Services
Mt. San Antonio College

Chancellor's Staff

Dr. Ernest Berg, Specialist
Program Evaluation and Approval

Dr. Ronnald Farland, Administrator
Special Projects

*Members of Subcommittee on Matriculation

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APPENDIX B

SITE VISIT SCHEDULE

COLLEGE	CONTACT PERSON AND TITLE	DATE	TEAM MEMBERS
Sacramento City	Barry Tucker Dean, Students Services Sacramento City College	August 11	Drs. Ronnald Farland & Ernest Berg, Chancellor's Office staff; Dr. Ed Shenk, Associate Dean, Napa College; and John McFarland, Instructor, Sierra College
Southwestern	Norma Hernandez Dean, Counseling and Guidance Southwestern College	August 15	Drs. Ronald Farland & Ernest Berg, Chancellor's Office Staff, Judy Stratton, Dean of Students, Mira Costa College
Yuba	Robert Rutledge Associate Dean, Admissions & Counseling Yuba College	August 17	Drs. Ronnald Farland & Ernest Berg, Chancellor's Office Staff; Dr. Margie Dominici, Dean of Admissions, Shasta College
Glendale	Harold Cochrane Dean, Guidance & Counseling Glendale College	August 22	Dr. Ronnald Farland, Chancellor's Office Staff; Del Anderson, Dean of Students, Los Angeles Harbor College; Kathy Neal, Member, Board of Governors
Fullerton	Philip Borst President Fullerton College	August 23	Dr. Ronnald Farland, Chancellor's Office Staff; Del Anderson, Dean of Students, Los Angeles Harbor College
Merritt	George Herring Dean of Admissions & Students Merritt College	August 23	Dr. Ernest Berg, Chancellor's Office Staff; Rosa Perez, Vice President, Student Services, City College of San Francisco
Los Angeles Harbor	Del Anderson Dean of Students Los Angeles Harbor College	August 24	Dr. Ronnald Farland, Chancellor's Office Staff; Fred Garcia, Dean, Admissions & Counseling, Golden West College; Carmen Decker, Instructor, Cypress College

San Bernardino Valley	Dr. John Bancroft Assistant Dean Student Development San Bernardino Valley College	August 25	Dr. Ronnald Farland, Chancellor's Office Staff; Fred Garcia, Dean, Admissions & Counselling, Golden West College; Carmen Decker, Instructor, Cypress College
Santa Rosa Jr. College	Brook Tauzer Vice President Santa Rosa Junior College	August 26	Dr. Ernest Berg, Chancellor's Staff and Rosa Perez, Vice President for Student Services, City College of San Francisco
Chabot Valley Campus - Livermore	Dr. Richard Yeo Dean of Instruction Chabot Hayward Campus	August 29	Dr. Ernest Berg, Chancellor's Office Staff; David Brown, Trustee, Los Rios CCD; Rosa Perez, Vice President, Student Services, City College of San Francisco
Los Angeles Mission	Irving Weinstein Dean of Academic Affairs Los Angeles Mission College	August 30	Dr. Ronnald Farland, Chancellor's Office Staff; Jonnah Laroche, Instructor, Allan Hancock College; F. Michael Keenan, Dean of Student Services, Antelope Valley College; Olive Scott, Vice President, Instruction, Cerritos College
Allan Hancock	Agnes Crogan Dean of Liberal Arts and Sciences Allan Hancock College	September 8	Dr. Ronnald Farland, Chancellor's Office Staff; Dr. Alfred Fernandez, Chancellor, Ventura County Community College District
City College of San Francisco	Rosa Perez Vice President Student Services City College of San Francisco	September 22	Dr. Ronnald Farland and Ron Dyste, Chancellor's Office Staff; Christine Johnson, Dean of Student Services, College of Alameda; Dr. Richard Yeo, Dean of Instruction, Chabot College
Modesto	Patricia Worth Chief Instructional Office Modesto Junior College	September 27	Dr. Ernest Berg, Chancellor's Office Staff; Don Klein, Dean of Students, Gavilan College; John McFarland, Instructor, Sierra College

Kings River	Richard Giese Dean of Students Kings River College	September 28	Dr. Ernest Berg, Chancellor's Staff; John McFarland, Instructor, Sierra College
El Camino	Dr. David Jordan Dean, Student Services El Camino College	October 12	Dr. Ronnald Farland, Chancellor's Office Staff

APPENDIX C

MATRICULATION STUDY

SITE VISIT INTERVIEWS
INITIAL EXPLORATORY VISIT
SUMMER/FALL, 1983

1. College _____ 2. Contact Person _____

3. Date/time of visit _____

4. Members, Site visit team _____

_____

_____

5. What components of the Board's Preliminary Matriculation does the college have in operation?

6. When and why did the college establish the existing components? (Include "who" was involved, if possible).

7. What students are and are not assessed?

8. What skills tests are used?

9. What other assessment is done?

10. How is assessment information used?

    a) If for course placement:

        1. In what courses?

        2. Is placement advisory or mandatory? What rationale does the college give for its choice?

    b) For referral to services? Which?

    c) For curriculum planning? How?

11. What is the nature and extent of counseling/advising:

    a) for first-time students at or near registration?

b) for first-time students after enrollment?

c) for continuing students?

12. What is the "state of the art" of the college's information systems/research capacity?

a) for doing student follow-up?

b) for evaluating/planning curricula?

13. What comments/criticisms do college personnel have about the Board's matriculation model?

14. What comments do college personnel have about the effects (on their college) of implementing matriculation?

15. Are there characteristics/conditions in the college that encourage or inhibit the implementation of matriculation processes?

16. What would be the major areas of resource allocation or reallocation required if matriculation were to be fully implemented?

17. What are the unique or special features of this college's program that should be followed up in detail on a second site visit? (Include also any "gaps" in understanding that should be filled.)

18. Other general comments:

APPENDIX D

FIELD INPUT HEARING SCHEDULE

January 18, 1984	Fresno City College Cafeteria/Staff Dining Room Contact: Dr. Clyde McCully	Ronn Farland (panelist)
January 19, 1984	College of San Mateo Coral Room, Building 4 Contact: Gil Gossett	Ronn Farland Rosa Perez Jim Wyatt Jonnah Laroche
January 25, 1984	San Diego City College The Theater Contact: Murlene O'Conner	Ronn Farland Joe Cortez Philip Borst Olive Scott
February 2, 1984	Sacramento City College College Center Contact: Karen Ishimoto	Ronn Farland Ed Shenk
February 9, 1984	Chaffey College Auditorium Contact: Philip Hartley	Ronn Farland Al Fernandez
February 10, 1984	Los Angeles Valley College Theater Contact: Carlos Martinez	Ronn Farland Wallace Albertson Philip Hartley David Bender

APPENDIX E

COMMUNITY COLLEGE MATRICULATION COST STUDY

March 1984

E. Gareth Hoachlander
Susan P. Choy
Charles S. Benson, Consultant

MPR Associates, Inc.
1950 Addison Street, Suite 102
Berkeley, California 94704

Dr. Ronnald Farland, Project Monitor
Chancellor's Office
California Community Colleges

PREFACE

The Matriculation Cost Study estimated the cost of implementing the model student matriculation process designed by the Task Force on Academic Quality. Since the completion of this study, the Task Force has continued its deliberations and made refinements in terminology. Additionally, some activities now appear in different components. Nevertheless, the full scope of activities comprising matriculation has not changed. Therefore, the cost estimates presented in this report still hold overall.

Ronnald Farland
Project Monitor
April 1984

SUMMARY

The Chancellor's Office of the California Community Colleges contracted with MPR Associates to conduct a study to determine how much it would cost to implement a matriculation plan statewide and to consider how such a plan might best be implemented. Working with the matriculation model developed by the Matriculation Subcommittee of the Task Force on Academic Quality and data collected from a representative sample of 12 colleges, we developed a cost simulation model. The model was used to generate estimates of the cost of implementing that model statewide and to examine the sensitivity of the estimates to various assumptions about workloads, levels of service, and numbers of students.

THE STUDENT MATRICULATION MODEL

The model student matriculation process designed by the Task Force includes four major components:

(1) Application for admission. A basic application would be required of all students wishing to enroll in a community college, even though some would be exempted from subsequent parts of the matriculation process. From the application the colleges would be able to identify the student's educational goal, make a preliminary assessment of the need for support services, determine whether or not the student needed to be tested for English proficiency, and decide whether or not the student should be exempted from any subsequent part of the matriculation process.

(2) Orientation. All students (other than those specifically exempted by the college) would attend an orientation session designed to acquaint them with college programs and services and with the expected standards of performance.

(3) Pre-registration support for new students. To ensure that students are properly placed in classes and receiving needed support services and to assist colleges in planning, all students (except those exempted for good reason) would be tested and counseled prior to their initial enrollment. The counseling session would include a discussion of the student's educational goal, a review of the test results and the student's previous education, and an evaluation of the need for support services. The counselor would then advise the student about courses.

(4) Post-registration counseling and monitoring. After enrollment, the college would monitor the student's progress and periodically advise the student. Counseling would be mandatory for students undecided about their academic objective, on academic probation, or enrolled in remedial courses, and would be available to all others. For this last group, counseling would be provided either individually on request or in small groups.

MATRICULATION IN THE SAMPLE COLLEGES

Site visits were made to a representative sample of 12 colleges. The visits were designed to serve three purposes. First they served to identify what matriculation

activities were already in place and what was being expended for them. Second, they served to determine what additional resources would be needed to implement the matriculation model. Third, they served to collect data on salary scales, benefit packages and enrollments. On the basis of the information collected during these visits, we were able to make the following general observations about matriculation activities in the sample colleges:

- each of the major components of matriculation has been well developed in at least one of the colleges visited, but no one college has developed the full spectrum to the level specified by the model;
- great variety exists in the way that matriculation activities are now being carried out;
- there is widespread awareness of the state-level interest in matriculation and general support for further implementation of matriculation activities.

With respect to the specific components of the model, we found the following:

- all of the colleges have well-developed admissions and records systems, which would not require major change except for expanding student data bases and data processing capabilities in some colleges;
- most of the colleges have orientation programs, but all would have to expand the number of sessions if attendance were mandatory for all new students;
- testing practices vary widely, from none at all to several hours of testing for all new students; most colleges would need more resources for purchasing tests and more staff to administer and score them;
- all colleges make some counseling available to new and continuing students, but all would need to increase their counseling staffs significantly to deliver the level of services provided for in the matriculation model;
- none of the colleges anticipated a need for substantial new resources for administration of matriculation.

ESTIMATES OF TOTAL COSTS, EXISTING EXPENDITURES, AND NET COSTS

To determine the cost of implementing the matriculation model statewide, we examined three types of costs: total operating costs, net operating costs when existing expenditures for matriculation activities are considered, and one-time start-up costs. The most recent expenditure data available are for 1982-83. Thus the cost estimates represent the amounts the state would have to provide over and above what was spent in 1982-83, not 1983-84.

Using a conventional spreadsheet program developed for microcomputers, we estimated the costs for each component of the matriculation model to be as follows:

Activity	Estimated Cost (millions)	1982-83 Expend. (millions)	Net Cost (millions)
Orientation	3.2	1.2	2.0
Testing	3.0	.4	2.6
Counseling (all applicants)	65.5	43.9	21.6
Counseling (registrants only)	61.3	43.9	17.3
Admissions and Records	61.2	56.6	4.6
Administration	3.3	3.3	0.0
Total (all applicants)	136.2	105.4	30.7
Total (registrants only)	131.9	105.4	26.5

These estimates reflect important assumptions about students, workloads, and costs. The estimates are therefore sensitive to changes in our assumptions. Thus changes of plus or minus 5 percent in total enrollment, cost of a counseling FTE with support, counseling contact time, or existing expenditures produce changes in the estimate of net costs ranging from -19.9 percent to +19.9 percent.

The only significant one-time start-up cost would be for data processing. All colleges would need additional terminals, some would need additional storage or other upgrades to increase processing speed, and some would need new software.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the data collected and analyzed for this study, we calculated the net cost of matriculation to be $26.5 million. Taking into account the uncertainty associated with some of the assumptions and with the accuracy of the expenditure data collected from the colleges, we estimated the net cost to fall within a range of $22 million to $32 million, if pre-registration counseling is limited to registrants only.

Our major recommendations are as follows:

- given the uncertainty about both the costs and benefits of matriculation, the state should proceed with matriculation on a pilot basis at a group of ten to twenty colleges, with evaluation of costs and benefits an important component of the pilot;

- in order to be able to discern the impact of matriculation, the pilot colleges should include some colleges that do not yet have well-developed matriculation systems;

- to meet computer hardware and software needs, the state should establish a fund to which colleges may submit proposals;

- given the great diversity that exists among the community colleges, implementation should be as permissive as possible, with the colleges allowed to target funds made available to them for matriculation in the way that they judge to be most effective for their particular situations;

- a study should be conducted concurrently with the pilot project to develop equitable procedures for allocating funds for matriculation.

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I. INTRODUCTION

Matriculation is a guidance and student service process that helps a student select and attain a specific educational objective. It is in essence a contract between a college and a student. The college is obligated to provide admission, assessment, pre- and post-registration counseling, and monitoring of student progress. The student, in turn, is required to declare an educational objective, attend classes, complete assignments and courses, and maintain progress towards the educational goal.

At the moment, there is no statewide policy on matriculation, although many colleges offer at least some of the elements of a matriculation process. Support has been growing in recent years for the implementation of a statewide matriculation policy as a means of enhancing the effectiveness and efficiency of the community colleges.

In April 1983, the Chancellor appointed a Task Force on Academic Quality. One of the Task Force's responsibilities has been to explore and make recommendations concerning the feasibility of implementing a student matriculation process in the California Community Colleges. The Task Force has developed a preliminary student matriculation model and, in addition, has been conducting an observational study of existing matriculation activities at 16 colleges around the state.

Subsequent to the formation of the Task Force, the state legislature provided funds (in SB 851) for the Board of Governors of the California Community Colleges to develop a plan for a student matriculation system. The Board of Governors was directed to make a report (including recommendations) to the legislature by April 15, 1984. To assist with this plan, the Chancellor's Office contracted with MPR Associates to address two major questions:

- What would it cost to implement a matriculation plan statewide?

- How might such a plan best be implemented?

PROJECT OBJECTIVES

To answer these questions, MPR Associates conducted a study with the following specific objectives:

- define the primary cost components of the matriculation system;

- define standards for the range of acceptable levels of resources required to carry out each component of the matriculation process satisfactorily;

- using data collected from a representative sample of colleges, determine the costs of implementing a statewide matriculation system, distinguishing between non-recurring start-up costs and on-going operating costs;

- from the sample data, determine existing resources that are presently, or could be, devoted to matriculation services;

- consider different strategies for implementing matriculation.

METHODOLOGY

To meet the objectives of the study, four major activities were conducted:

Definition of the Components of the Matriculation Model

The aim of the Task Force was to develop a general matriculation model that could be adapted to meet local needs. Estimating costs, however, requires precise definitions of what is included in each activity and the level of service to be provided. For example, for purposes of estimating costs it is not sufficient to know that orientation sessions will be held. It is also necessary to know how long the sessions will be, how many students will attend, and who will conduct the sessions. Thus,the first activity was to meet with the project monitor and other members of the Chancellor's Office staff familiar with the Task Force's work to specify the components of the matriculation model precisely enough for developing cost estimates. The components of the matriculation model are described in Section II.

It should be emphasized that if and when matriculation is implemented statewide, colleges will not have to follow this model exactly. Instead, they will have considerable discretion in implementing each component.

Development of a Cost Simulation Model

With the components of the matriculation model defined, the next step was to develop a mathematical model of the matriculation system to relate the services to be provided to the types, amounts, and costs of the resources required to provide them. The model was computerized, and designed to generate estimates of two types of costs associated with each component of the matriculation model: (1) total operating costs; and (2) net costs -- the difference between total operating costs and what is currently being expended on matriculation activities already in place. One-time start-up costs were estimated separately.

Site Visits

To obtain data for the simulation model, a representative sample of 12 colleges was selected. There is no "typical" community college. The California Community College System consists of 106 colleges that vary widely in their sizes, locations, programs, and services, and in the types of students they serve. The goal, therefore, was not to find typical colleges, but to select colleges that on one hand reflect the diversity of the system, and that, at the same time, when taken as a group, match the characteristics of the system as a whole. Thus, we looked for a sample that would be representative of the system as a whole in terms of size (small, medium and large); location (north, south, urban, suburban, and rural); type of enrollment (day, evening); student characteristics (race, sex, special needs status); and expenditures per ADA.

The sample consisted of the following colleges:

North	South
Diablo Valley	Canyons
Hartnell	Compton
Laney	Los Angeles Harbor
Mendocino	Los Angeles Mission
Sierra	Orange Coast
	Santa Monica
	Southwestern

As Table 1 shows, these colleges are, in sum, very representative of the community college system as a whole. In Fall 1982 they made up 11.3 percent of the colleges and 10.8 percent of the statewide enrollment. The sample also includes an appropriate balance of colleges in terms of size and location. In terms of race, other student characteristics, type of enrollment and financial data, the percentages in the sample colleges closely match the corresponding statewide figures.

The presidents of the colleges selected were contacted by the Chancellor's Office. All agreed to participate in the study and designated someone to coordinate the visit.

A data collection instrument and an interview guide to be used during the visit were developed in consultation with Chancellor's Office staff who had been working closely with the Task Force. These materials were designed to collect the following information:

- a detailed description of the matriculation activities already in place at the college;
- an estimate of what additional resources would be needed to implement the matriculation model designed by the Task Force;
- data on expenditures by object for existing matriculation activities;
- current salary scales and benefit costs;
- data on enrollments in various categories.

All information was requested for 1982-83, the most recent year for which expenditure data were available.

The data collection instrument and interview guide were pre-tested at a college that was not part of the sample. Appropriate staff were interviewed, the required information obtained, and the instrument and guide discussed. Following the pre-test, the data collection instrument and interview guide were revised slightly to improve their clarity and then sent to the sample colleges in advance of the visits to allow time for gathering data and for reflection before the interviewer arrived.

Table 1

COMPARISON OF SAMPLE COLLEGES TO ALL COLLEGES
(Fall 1982)

	All Colleges	Sample Colleges
Size Characteristics		
% of colleges represented		11.3
% of enrollment		10.8
% of day enrollment		11.2
% of ADA		10.6
No. < 10,000 enrollment	50	5
No. 10-20,000 enrollment	34	5
No. > 20,000 enrollment	19	2
Race		
% White	59.2	58.7
% Minority	32.6	32.7
% Black	8.4	10.5
% Hispanic	11.7	9.9
% Asian	6.8	6.5
% Other	5.7	5.8
% Unknown	8.2	8.6
Student Characteristics		
% Female	54.0	53.6
% EOPS Eligible	5.6	5.5
Type of Enrollment		
% Day	60.6	62.5
Financial Data (1981-82)*		
Current Expenditures per ADA	$1934	$1967
Expenditures for Admissions and Records per student	$23.30	$25.30
Expenditures for Counseling and Guidance per student	$39.40	$42.10

* District data used.

A one-day visit was then made to each of the 12 colleges by either one or two project staff members. The site visit coordinator was usually a vice president, dean of student services, or dean of counseling. Information was also obtained from those responsible for admissions and records, counseling, testing, orientation, and, where appropriate, data processing and budget. College staff were extremely helpful, and no serious difficulty was encountered in obtaining the information requested.

Data Analysis

To estimate the cost of matriculation, the data gathered from the site visits were entered into the computer model along with the assumptions about service levels and resource requirements developed in the first activity. The model then calculated estimates of the total and net operating costs associated with each of the activities of the matriculation model. Start-up costs were estimated separately.

The model was also used to demonstrate the sensitivity of these estimates to the assumptions made about students, workloads, and costs. This type of analysis is extremely important, since many of the variables entered into the model are estimates. By estimating what the matriculation model would cost not only with our original estimates, but with say, 5 percent more students served, it was possible to identify a range within which the actual costs would most likely fall.

This first section has provided some background to the study and described the major objectives and activities of the project. Section II outlines the major components of the student matriculation model designed by the Task Force. Section III provides an overview of matriculation activities in the sample colleges and discusses in general terms what would be needed to provide the level of services specified in the matriculation model. Section IV examines the costs of matriculation -- the total cost of statewide implementation of the matriculation model, the net cost after current expenditures for matriculation-related activities have been subtracted, and one-time, start-up costs. Section V discusses the conclusions and presents recommendations.

II. THE STUDENT MATRICULATION MODEL

The model student matriculation process designed by the Task Force, includes four major components: (1) a formal application for admission; (2) an orientation to the college's programs and services; (3) pre-registration support that includes assessment of student skills and needs, counseling, and placement; and (4) post-registration support that includes counseling, monitoring of student's progress, and referral to appropriate support services. What follows is a description of each of these components as currently formulated. It is important to keep in mind that the observational study has not yet been completed. It is therefore possible that the details of the final model may differ from what is presented here.

As a rule, all students would matriculate. Colleges would, however, be permitted to establish criteria, within state guidelines, to exempt some students from all or part of the process. The criteria and the proportion of students exempted might vary from college to college according to the characteristics of the students served and the service areas of the colleges. The purpose of the state guidelines would be to assure that the exemption criteria were not arbitrary but were consistent with the purposes of matriculation.

APPLICATION FOR ADMISSION

A basic application would be required of all students wishing to enroll in a community college, even though some may be exempted from all subsequent parts of the process. The application would begin a permanent file on a student to be used later to evaluate the student's progress and to assist in referral to appropriate support services. Actual delivery of student support services is not considered part of matriculation, only identification of the need for them.

The application would still be locally designed, but would have to obtain specific information needed to facilitate the efficient completion of the subsequent steps of the matriculation system. To meet this requirement, the application must request information that would allow the colleges to determine:

- whether or not the student has decided on an educational objective, and if so, what it is;
- whether or not the student needs any of the support services provided by the college (such as financial aid, assistance for the learning disabled, services for the physically and communicatively limited, child care, study skills assistance);
- whether or not the student needs to be tested for English proficiency;
- whether or not the student should be exempt from any subsequent step in the matriculation process such as assessment or counseling (e.g. on the basis of scores from previously administered aptitude or assessment tests, or previous education).

ORIENTATION

Orientation programs would be provided before each registration period to acquaint new students with the programs and services provided by the college and with the expected standards of performance. The exact form and content of the orientation would be left to the discretion of the colleges. Generally, however, orientation programs would be planned and conducted by counselors, and representatives from the major student services and academic divisions would be introduced.

For the purposes of this study we assumed that one day of a dean's time and one day of each counselor's time would be required annually for preparing for orientation. The following other assumptions were also made: (a) each session would last one hour and be attended by approximately 100 students; (b) each session would be staffed by two counselors, a technician, and a student worker; (c) each session would require about 16 hours of clerical time for scheduling, mailing, and assembling materials to be distributed during the session; and (d) $2.00 per student would be needed for supplies and handouts.

Attendance at orientation would be mandatory, although the colleges would be permitted to exempt specific categories of students if they wished. For purposes of this study, we have assumed that colleges would wish to exempt students who already have degrees and students taking only one course for recreational reasons. We know from the Chancellor's Office student data system that approximately 15 percent of all students statewide already have an AA degree or above, but no data are available to indicate how many students are only taking one course for recreational purposes, much less how many of these are already counted among those who already have degrees. We considered 20 percent to be a reasonable estimate of the percentage that would likely be exempted.

PRE-REGISTRATION SUPPORT FOR NEW STUDENTS

The major purposes of pre-registration support for new students would be: (a) to ensure that the student is placed in appropriate classes and receiving any needed student support services, and (b) to provide information about students and their educational goals that is useful to the college for planning its curriculum and services. The following have been identified as likely pre-registration support activities:

- preliminary identification of educational goals if the student was undecided at the time of application;
- testing for competency levels in reading, writing, mathematics, and the English language;
- assessment of learning skills;
- assessment of need for support services such as financial assistance; EOPS or HSPS; child development centers or women's centers; or other services offered by the college.

The applications of all new students would be screened to identify the student's educational objective, to see if testing is needed before placement, and to see if

referral to student support services is needed. Students would then be scheduled for testing if needed and referred to the appropriate offices for support services.

The specific battery of tests would be determined by local option, at least at this time. We assumed for this study that the average college would administer two tests, each costing $2.00 per student and lasting 60 minutes. We further assumed that students would be tested in groups of 50, with a proctor administering and scoring the tests.

After testing, but prior to enrollment, all new students would have a counseling or advising session to discuss their educational goals, to review their test results and their previous education, to advise them on courses, and to refer them for further testing or to appropriate student support services if needed.

In practice there are many ways to provide counseling services. While individual appointments are the most common, many colleges have found group counseling to be an effective way of dealing with the large number of students who present themselves for counseling immediately before registration, especially if students can be grouped according to educational objective. The matriculation model, however, implies a very individualized assessment, most of which takes place at the initial interview with a counselor. We therefore assumed that, on the average, each student would receive a half hour appointment with a counselor.

After this initial assessment and counseling, the student would be permitted to enroll in specific courses. We assume here that the same students who were exempted from orientation, that is, 20 percent, would also be exempted from pre-registration testing and counseling.

POST-REGISTRATION COUNSELING AND MONITORING

Once a student has been assessed and advised and has enrolled in courses, the college would monitor the student's progress and academic performance and periodically advise the student until the completion of the declared academic objective. The monitoring process could take a number of forms, and might include the following:

- periodic counseling, either individual or small group, to review student progress relative to the educational goal and advise students regarding appropriate courses;
- a system of "early warning" of academic problems that identifies students in academic difficulty so that contact can be initiated and appropriate assistance provided, including referral to support services;
- referral to a comprehensive program of academic support services such as tutorial assistance, basic skills workshops, and so on;
- research on the impact of the matriculation system on student progress.

The Task Force identified three groups for whom post-registration counseling would be mandatory: students still undecided about their educational objectives, students on academic probation, and students enrolled in remedial courses. For students

in each of these groups, we have assumed that an average of 30 minutes of individual counseling would be necessary each semester. Students who do not fall into any of these three groups we have labeled "continuing" students, and while they would not be required to see a counselor, some provision must be made for those who wish to do so. We have assumed that within this group of continuing students, on the average half would request a counseling appointment averaging 30 minutes each semester. Another way of delivering this level of service would be to provide one hour of counseling to all continuing students in groups of 4. Such group counseling may be more efficient than individual counseling as a way to inform students about requirements for their major, requirements for transfer, career options, and so forth. In practice, many colleges would probably provide a mix of individual and group counseling to continuing students.

III. MATRICULATION IN THE SAMPLE COLLEGES

To provide a context for examining the cost of matriculation, we summarize here what the sample colleges are already doing with matriculation and, in general terms, what is needed to implement the model designed by the Task Force. We do this component by component, but first offer some general observations on the current status of matriculation on the campuses we visited.

Each of the major components of matriculation has been well developed at at least one of the twelve colleges visited, but no college has developed the full spectrum of matriculation activities to the level considered desirable by the Task Force. We found colleges with well developed, mandatory orientation programs, colleges with extensive testing prior to registration, and colleges with individual counseling prior to registration. We also found colleges that have invested heavily in computing equipment and student data bases that are easily accessible to counselors for monitoring student progress and for seeing that students are referred to appropriate support services. In short, each of the major activities envisioned by the Task Force is feasible. "It can't be done" is not a defensible objection to any of the proposed matriculation activities. Somewhere in California's community colleges, it is being done. On the other hand, it was equally clear that where substantial investments had been made in one area, it was at the expense of others. No college could implement the full model without additional resources.

Great variety exists in the way that matriculation activities are now being carried out. California's community colleges are extraordinarily diverse. Some serve remote rural areas where many residents are strongly suspicious of anything that smacks of governmental intrusion. "Community colleges are our institutions paid for with our taxes. The state has no right to tell us what courses we can and cannot take!" Here, public institutions are highly personal. Everyone knows everyone, and "public" information that may be taken for granted in more impersonal urban areas acquires a special sensitivity that complicates such activities as testing, information sought on applications, and monitoring.

The colleges also serve different populations with different educational objectives. Some have larger day populations with many students with the traditional aim of transferring to four-year colleges or universities, while others are more evening oriented, with students more interested in skill upgrading or other vocational objectives. Some have very heterogeneous student bodies, while others have quite homogenous ones. The variety in existing matriculation activities reflects the diversity of the settings.

If statewide matriculation is to be implemented successfully, it will need to be cognizant of this diversity. Wherever possible, implementation will need to be "permissive," allowing local colleges extensive discretion and flexibility in making each of the components of matriculation operational.

For example, formal provisions for identifying and assessing students with limited English proficiency may make great sense in San Francisco or Los Angeles, but may be unnecessary in Rocklin. To mandate uniform procedures would be inefficient and only cause resentment. Thus the importance of flexibility cannot be emphasized too strongly.

There is widespread awareness of matriculation and general support for the concept. Most of the administrators we interviewed believe their campuses would benefit from matriculation, provided the state did not impose a system of uniform standards and procedures that could not be adapted to local circumstances. If this proviso were not heeded, this support would quickly turn to opposition.

Although there is substantial support for matriculation, the strength of this support varies among the colleges we visited and from division to division within a particular college. Not surprisingly, support is strongest among student services personnel, but even some of them expressed concerns. Chief among these was the worry that matriculation would be abused. Rather than a system for improving the fit between students' needs and the colleges' curricula and support services, matriculation could become the means for severely restricting access to the colleges or to particular programs. From this perspective, matriculation is seen as a potential Trojan horse for radically altering the mission of community colleges in California. In the view of some, even a well intended matriculation system may discourage application to community colleges, erecting a set of hurdles that many potential students would be unwilling to jump.

Different views were heard from the academic side. As the primary objective of our study was determining the cost of matriculation rather than assessing the concept itself, we did not systematically interview those in charge of instruction. We did, however, have the opportunity to talk to several deans of instruction and one college president. None of these actually objected to matriculation, but some did indicate that, permitted the option, they would give priority to instruction rather than student services if additional resources were to become available.

In part, these different priorities reflect different opinions about the relative value of counseling and other student services. Among the twelve campuses we visited, there seemed to be great variation in how student services, particularly counseling, were regarded by the instructional side of campus operations. On some campuses, counseling and academic instruction appeared to be well integrated, working together and complementing one another. On others, counseling seemed much more isolated and less respected. Because the condition of counseling was not the purpose of our study, we did not systematically investigate the reasons for this. However, there is some evidence that matriculation has important implications for the quality of counseling.

The experience of one of the colleges we visited will illustrate the point. This college now has about two years of experience with a well developed matriculation system. Immediately prior to its implementation, relations between counselors and faculty had sunk to rock bottom. Faculty were threatening to exclude counselors from the academic senate and were actively lobbying for large cuts in the college's counseling budget. At a meeting of the academic senate six months after the implementation of matriculation, relations had so improved that faculty rose to give counselors a standing ovation.

What is so remarkable about this anecdote is that there had been no change in counseling personnel. Individuals who six months earlier had been considered pariahs by the faculty were later being lauded by the same group. Matriculation brought a sense of purpose and a focus to counseling that dramatically increased its quality and the

esteem in which others held it. Whether this can be accomplished statewide remains to be seen, but the experience of this one college suggests that it may be possible.

With these general observations in mind, we turn now to the component by component description of matriculation in the sample colleges and our general assessment of what will be needed to implement full matriculation. It should be kept in mind that we are reporting on only 12 colleges here. However, as indicated earlier, they were carefully chosen to be representative of all the colleges. In addition, in the course of the study we have met with members of the Task Force and Chancellor's Office staff who have been participating in the observational study and who have general familiarity with community colleges. It is with some confidence, then, that we conclude that what follows applies statewide.

ADMISSIONS AND RECORDS

All of the colleges in our sample have well developed admissions and records systems. Features common to all campuses include:

- a formal application for all new students and new transfers (returning students were usually required to complete a new application if they had been away for more than one or two semesters; continuing students typically filled out a shorter registration form);

- computerized application information -- all colleges entered application data into a computer, although the means for doing so varied, with some applications being electronically scanned and others requiring manual data entry;

- an automated student data base with courses, grades, units completed, and necessary demographic data.

The matriculation model would not require major changes in the application forms used by any of the colleges in the sample, although a few colleges would have to add data elements (for example, for educational goal) that have implications for data processing (see below). Colleges routinely alter and reprint applications. Consequently, with sufficient lead time to make changes, matriculation would impose no significant additional costs with respect to the application form itself.

From data collected on the application, many of the colleges now generate lists of students for EOPS, handicapped services, financial aid, and other offices that request them. These lists are used to contact students prior to registration or shortly thereafter to inform them about available services and where they are located. With some additional programming and one-time expenditures for data storage or increasing processing speed, all of the colleges in the sample could generate such listings.

None of the colleges in the sample requires transcripts from all entering students, and everyone indicated that doing so would impose a substantial though hard to estimate additional cost. At present, any student desiring to place a transcript on file may do so, and of course, all those wishing to transfer credit must produce transcripts.

Matriculation's primary impact on admissions and records would occur in data processing. Many colleges are at the limits of their present computing systems both in terms of storage and processing time. Consequently, adding data elements (test scores, for example) to the data base or using the data base in new ways to generate listings of particular types of students would require one-time expenditures for new hardware. Additionally, expenditures for software or in-house programming would be required, although these are likely to be substantially less than hardware costs.

The bulk of additional data processing needs that matriculation would impose are likely to be one-time costs for the purchase of hardware and software. On-going expenses are not likely to be much greater than at present. Below we recommend establishing a separate fund for data processing purchases to implement matriculation. Colleges would be able to submit proposals to this fund to obtain support for one-time purchases of equipment.

To cover additional on-going expenditures for data processing, an additional half-time programmer has been provided for each district. Admittedly, this is a crude estimate but is based on what many of the data processing people told us they thought they would need. Also needed would be clerical help in admissions and records, primarily for data entry. We have estimated this additional need to be one clerk per 10,000 students enrolled in an average semester.

Finally, there is a need for additional research and monitoring of the matriculation at the local level. It was estimated that this need could be met with a half-time person at the associate dean level plus support (one-eighth of a secretary) per 10,000 students enrolled in an average semester.

Aside from these rather modest additional expenditures for programming, clerical assistance, and research, there appears to be no need for additional on-going expenditures for admissions and records. The existing system should be able to absorb the matriculation model without major changes.

ORIENTATION

Ten of twelve colleges in the sample conducted orientation sessions for new students. How orientation was conducted varied greatly. Some colleges combined orientation with counseling, others with testing, and some did all three together. Some held orientation prior to registration, and others held orientation and registration simultaneously. At some colleges, orientation was mandatory for all new students, but at others it was not.

Typically, orientation was used to welcome students to the campus and to begin to familiarize them with curricula, services, rules, and procedures. Some colleges used slide or video tape presentations to provide a campus tour. Most introduced various deans and directors of such services as financial aid, EOPS, and handicapped. Several colleges conducted walking tours of the campus, and one included library orientation. The size of an orientation ranged from about 50 to 150, with the major constraint being the size of the rooms available for conducting orientation.

All colleges provide handouts of some sort, but there was a difference of opinion among the colleges as to whether students should be given a copy of the

catalog at orientation (prices ranged from about $1.25 to $2.00). Some of those interviewed felt strongly that students should receive their first catalog free. The catalog, they argued, constitutes a contract with the student that governs the student's entire academic career at the college. Therefore, they should have a copy. Others felt just as strongly that providing a free catalog is wasting money. "Half the students won't read it," was a typical reply.

In addition to providing for orientation on campuses where none is conducted now, the major difference between orientation as envisioned by the Task Force and the orientation as practiced now is its mandatory nature. With all but the 20 percent exempt new students required to attend orientation, more sessions would be required.

TESTING AND ASSESSMENT

Three of the twelve colleges in the sample now have no formal system of testing students prior to registration, although the English and math departments on some of these campuses do some testing after registration to place students in appropriate courses. On the other nine campuses, testing procedures vary widely. There is no test common to all colleges. Some use commercially developed tests, and many employ various types of "home grown" English and math tests. Commercially developed tests that are not reuseable cost as much as $2.50 per student, while the cost of reuseable booklets or tests developed in-house can be as low as $.20 for a "Scan-tron" sheet that permits electronic scoring. Some test only English, others English and math. Testing takes as little as 40 minutes to as much as three hours, with about two hours typical. Few colleges make special arrangements for identifying and testing students with limited English proficiency, and one college reported growing problems with such students being incorrectly diagnosed as learning disabled. Special assessment for handicapped students has been left to handicapped services or not done at all.

The whole issue of assessment -- what should be assessed, what instruments should be used, and what categories of students should be given tests -- is currently receiving a great deal of attention statewide. There is a general belief that more should be done than is now being done at most places, but exactly what is still unclear. Under the circumstances, it is difficult to estimate the testing needs of a full matriculation model in terms of materials or time to administer tests. Some testing experts believe that all necessary testing can be done in an hour with the appropriate instruments, while others feel that two or three hours would be a minimum.

Given the assumptions about testing that we had to make for estimating the cost of matriculation (described in Section II), most colleges would need more resources for purchasing test materials and more staff for administering them. This could change in future years, however, as further evaluation of the assessment process continues.

PRE-REGISTRATION COUNSELING

All twelve colleges make some counseling available to students prior to registration. For fall semester, some colleges begin scheduling half-hour counseling appointments during the preceding spring. Others wait until two to four weeks prior to registration, and still others combine counseling (usually in groups rather than

individual appointments) with orientation, testing, or registration, or some combination of these. At some colleges, counseling is required for registration, at others it is not.

There are good reasons for this variety. Some colleges serve less stable student populations than others. For these, counseling must be scheduled close to registration to avoid wasting counseling resources on large numbers of applicants who never appear to register (at some of the colleges we visited, as many as half of those who apply never register). Some strongly believe in the effectiveness of group counseling, especially when combined with testing or orientation, while others are just as firmly convinced of the benefits of individual sessions with each student.

No college visited delivers the level of counseling services provided for by the matriculation model. All colleges would need to increase significantly their counseling and support staffs to be able to provide new students with a half hour of individual counseling. Because of the difficult logistics of counseling such a large number of students before registration, many colleges would have to reorganize their counseling practices to include more summer counseling.

POST-REGISTRATION COUNSELING

All twelve colleges in the sample make counseling available to students throughout the academic year. At most colleges, however, the existing staff is hard pressed to meet student demand. Counseling has been hit hard by the recent fiscal crisis, and a number of campuses have reduced the size of their counseling staff by 20 percent or more. One of the primary victims of these cuts is the evening student for whom access to counseling appears to have become especially problematic.

The ability of counselors to monitor students academic progress varied greatly among the colleges, depending mainly on the sophistication of the college's computing system and to some extent on the size of enrollment. In some colleges, access to students' files is virtually all manual -- that is, a paper file must be obtained from filing cabinet and returned when the review is finished — while at one college, counselors may call up any student's record on a personal video terminal. All colleges in the sample assessed students' progress at the end of the term, but only one evaluated mid-term grades to identify students in academic difficulty earlier.

As in the case of pre-registration counseling, no college in the sample has sufficient staff to deliver the level of counseling considered desirable by the Task Force. Many more counselors would be needed.

ADMINISTRATION

At each campus, we asked those directly responsible for supervising the various components of matriculation (usually deans of student services but in some cases deans of instruction or a vice president for student services) to estimate the amount of their time this function required. We also asked them if they thought this would change significantly if the full matriculation model were implemented. Most said no, except for initial planning, and we have assumed the existing level of administration is adequate.

IV. ESTIMATES OF TOTAL COSTS, EXISTING EXPENDITURES, AND NET COSTS

To determine the cost of implementing statewide matriculation, we sought to distinguish three types of costs: total operating cost, net operating cost when existing expenditures for matriculation activities are considered, and one-time costs incurred at the outset of implementation. As it turned out, the only significant one-time costs are for data processing, and these estimates are treated separately in one of the sections that follow.

The total operating cost of matriculation depends on four main variables:

- scope of activities: the major components comprising matriculation -- admissions and records, orientation, testing, pre-registration counseling, post-registration counseling and monitoring, and administration;

- standards of service levels and workload: number of tests, length of orientation, amount of counseling, and so forth;

- resource costs: salaries and benefits for certificated and classified personnel staffing the various matriculation activities, cost of tests, supplies, and so forth;

- number of students served: the types and number of students eligible for, or required to participate in, each activity of matriculation.

Discussions with the Task Force served to define the scope of matriculation, standards of service levels and workload, and the types of students to be served by each component of matriculation. The site visits, supplemented by data available from the Chancellor's Office, provided data on resource costs and the number of students to be served. This information enabled us to estimate the total cost of matriculation.

The site visits also provided data for estimating existing expenditures for matriculation. By subtracting these estimates of existing expenditures for each activity from our estimates of total costs, we were able to estimate the net costs of matriculation. These are the additional sums of money beyond what was spent in 1982-83 that the state would have to provide to implement matriculation as it has been conceived by the Task Force. Note that the base year is 1982-83. Although data are not yet available for 1983-84, most colleges we visited indicated that expenditures for counseling and other student services had been cut for this fiscal year. Consequently, our estimates of net costs will be increased by whatever is required to restore these activities to their 1982-83 levels.

Table 2 summarizes the estimates for each component of the matriculation system. The total statewide cost of matriculation is approximately $136 million, if pre-registration counseling were provided for all applicants, and approximately $132 million if pre-registration counseling were limited to registrants only. We estimate that the state presently spends about $105 million on matriculation related activities. Therefore the net cost of matriculation to the state would be about $31 million (counseling for applicants) or $26 million (counseling for registrants only). The calculation of these estimates will now be explained in detail.

Table 2
MATRICULATION SYSTEM SUMMARY

Activity	Estimated Cost	1982-83 Expend.	Net Cost
Orientation	3,189,172	1,224,431	1,964,741
Testing	2,952,731	392,497	2,560,234
Counseling (applicants)	65,502,114	43,928,829	21,573,285
Counseling (registrants only)	61,251,794	43,928,829	17,322,965
Admissions and Records	61,209,012	56,583,548	4,625,464
Administration	3,304,372	3,304,372	0
Total (applicants)	136,157,400	105,433,677	30,723,723
Total (registrants)	131,907,081	105,433,677	26,473,404

THE DATA

Using a conventional spreadsheet program developed for microcomputers, we designed a simulation model that estimated the total operating cost of each component of the matriculation model. The model required four types of data -- information on students, workloads, costs, and existing expenditures for matriculation activities.

Student Data

All student data are expressed as the combined total of fall and spring semesters for the 1982-83 academic year. We had to choose between calculating costs per semester and then multiplying by two or combining data for both fall and spring semesters and expressing all results as an annual total. Somewhat arbitrarily, we chose the latter course.

The data available on first census are quite accurate, and the first census estimates of new students and new transfers are also reliable. Many aspects of matriculation, however, are concerned with the number of new registrants or new applicants. Firm figures for these students were not available from the Chancellor's Office or the local colleges. Based on rough estimates from the site visits, we assumed that on the average the number of new registrants was approximately 15 percent greater than the figure at first census and that the number of new applicants was about 25 greater than the number of registrants.

The percentage of students who are undecided about their educational objective is difficult to determine precisely. At some of the colleges we visited, we were told that as many as 50 percent of students currently enrolled are undecided about their educational goal. Data reported to the Chancellor's Office put the statewide average at 39 percent for fall 1982 and 35 percent for spring 1983. The latter figure is based on larger number of colleges (presently not all report this information), so we assumed 35 percent of total enrollment to be undecided.

It also is not possible to obtain a precise estimate of the number of students

enrolled in remedial courses. Data are available only for total enrollments in courses. Students enrolled in more than one remedial course are counted twice, and it is not possible to obtain an unduplicated count. To ensure that all students in remedial courses were included, we used total course enrollment.

The number of students on academic probation statewide is not available from the Chancellor's Office. We asked each of the colleges in the sample to supply the number for its campus and used these figures to calculate a statewide estimate. Aside from sampling error, the figure can be considered reliable.

At the direction of the task force, we assumed that approximately 20 percent of new registrants would be exempt from most aspects of matriculation. Presently, data reported to the Chancellor's Office indicate that about 15 percent of students enrolled in community colleges have an Associate Degree or higher. This figure constitutes the lower limit for exemptions; additionally some students enrolled strictly for recreational purposes or perhaps taking only one course would be exempt. Allowing for overlap with the degree exemption, 20 percent seems a reasonable estimate.

Table 3 summarizes the statewide student data employed by the model. Detail on each of the colleges in the sample may be found in Appendix A.

Table 3
STATEWIDE STUDENT DATA USED TO DETERMINE COST ESTIMATES
Total for Fall and Spring 1982-83

Total enrollment, first census	2,499,892
Total new students and new transfers	702,808
Registration inflation factor from first census	15%
Estimated new students at registration	808,229
Application inflation factor from registration	25%
Estimated number of new applicants	1,010,287
Estimated number of students in remedial courses	200,000
Estimated number of students on academic probation	290,947
Exemption factor for advanced degrees and other factors	20%
Undecided factor as a percent of total enrollment	35%

The analysis ignores summer sessions, which posed a difficult problem. On a per student basis, operating summer sessions can significantly reduce certain per student costs. Much of the cost of admissions and records, for example, is fixed by the average size of fall and spring semester enrollments. If these fixed costs can be spread over summer students as well, costs per student can be reduced. Given the cap on ADA, however, in 1982-83, relatively few colleges were able to offer summer sessions in order to take advantage of these scale economies. Including summer students in the calculation of per student costs, therefore, would have artificially depressed true costs per student, because only those few colleges operating summer sessions were able to operate at these cost levels.

Because enrollments have declined in 1983-84, many more colleges will operate summer sessions in order to maximize ADA up to their district cap. This should not significantly affect our estimates, as long as the cap on ADA is not raised; increased

costs in the summer will simply offset reduced costs during the fall and spring. If the cap were raised, however, more colleges would be able to to take advantage of the scale economies inherent in year-round operations, reducing our estimates of total and net costs.

Workloads

The model employs a number of different staffing assumptions for orientation, testing, and counseling. The assumptions for orientation and testing reflect typical practices for these activities at the 12 colleges we visited.

To specify a counseling workload, we asked each college in the sample to tell us how many days per year and how many hours per day counselors worked. Days per year ranged from 175 to 197, with a student weighted sample average of 180.71 (See Appendix B). Hours per day ranged from 5.5 to 8 with a student weighted sample average of 6.36. Consequently, the average counselor in our sample worked 1149.3 hours per year (180.71 x 6.36). Not all of this time, however, is available for direct contact with students. Administration, outreach, monitoring and follow-up, time off for illness, and other factors all reduce the amount of time for student contact. We asked those in charge of counseling at each college to tell us what percentage of a counselor's total time was available for direct student contact. Their estimates ranged from 70 to 95 percent, with a student weighted sample average of 85.4.

This figure struck us and members of the Task Force as too high. Even if it accurately reflects existing practice (which we doubt), matriculation will increase the amount of time counselors will spend in other activities (monitoring and follow-up, for example). Consequently, we assumed that 75 percent of a counselor's time would be available for direct contact.

Additionally, we provided the equivalent of one clerk for every four counselors. This is somewhat higher than the ratio at many of the colleges in our sample, but consistent with our assumption that matriculation will increase counselor's responsibklities for monitoring and follow-up.

Finally, we assumed that the equivalent of an associate dean and secretary would be necessary for the supervision of every ten counselors. Although we found this level of administration at several of the colleges we visited, to some familiar with local practices, this may at first appear excessive. Several of the colleges we visited appoint one of the senior counselors as chair and pay a stipend. It appears, then, that they get off quite cheaply in terms of administration. However, when one considers that this individual spends most of his or her time in administration rather than direct student contact and that the stipend effectively raises the counselor's salary to something near that of an associate dean, our assumption appears more realistic.

In short, our workload assumptions are roughly in line with average practice at the sample of colleges we visited. It should be remembered, however, that they are intended merely as a means to estimate statewide costs; they are not intended to preempt standards established through collective bargaining at the local level.

Costs

The main cost factors affecting the model are our assumptions on salaries and benefits for certificated and classified personnel -- primarily counselors, associate deans, secretaries, clerks, technicians, and student workers. From each college in our sample, we obtained a complete set of salary schedules for all personnel and a full description of the benefit package. To calculate a student-weighted average cost of a counselor plus support, we first calculated the average counseling salary for each college. This was the average of the salary in the first column and first step and the one in the last column and last step. To this we added the cost of the local benefit package and the local salaries and benefits of a .25 FTE clerk. The result was our estimate of the cost of one FTE counselor plus clerical support at each college in the sample. We then computed a student-weighted sample average -- $38,020 after adjustments for local differences in the length of the school year and school day (See Appendix B). We followed a similar procedure for estimating other salaries and benefits.

The cost of supplies for counseling was roughly estimated at 1 percent of the cost of a counselor FTE, or $380 per FTE. This was consistent with what we found in local budgets.

The cost of tests ranged from about $.20 to $2.50 at local campuses, although it was frequently hard to get a firm figure. We assumed a cost of $2.00, toward the high side of the range. We did so for two reasons. First, the higher figure is more in line with the cost of commercially developed, standardized tests. Second, it reflects the higher costs that will be incurred to improve testing and assessment for the handicapped and those with limited English proficiency. As virtually none of this special testing is now part of matriculation, we were unable to obtain a good estimate of these special testing costs. However, by choosing an average test cost closer to the high end of the cost range in our sample, we sought to provide a very rough estimate of the resources necessary to carry out both regular and specialized testing and assessment. Admittedly, this is but a first cut, and the cost of specialized testing will need close attention as matriculation is implemented.

Expenditures

We asked each college in the sample to supply us with data on existing expenditures on the various matriculation components for 1982-83. In the case of admissions and records and guidance and counseling, obtaining existing expenditures was straightforward, as all colleges budget for these separately. To estimate expenditures for orientation and testing, it was necessary to ask those operating these activities to specify who conducted these activities, their job titles, and the amount of time they spent. This information was then used to estimate expenditures for orientation and testing, basing the calculations on local salary schedules and benefit packages -- information that was also collected during the site visits. In cases where expenditures for testing and orientation were included in local budgets for guidance and counseling, our estimated expenditures for these activities were subtracted from total expenditures for guidance and counseling to avoid double counting.

It proved especially difficult to determine precisely what colleges are now spending for data processing related to matriculation functions and to estimate

additional data processing costs of implementation. Most colleges do not charge back data processing costs to different activities (admissions and records, for example). In some colleges, the same equipment serves both instructional and administrative uses. One district's data processing center serves not only the community colleges in the county but also the county's elementary and secondary school districts. Under these conditions, isolating data processing costs attributable to matriculation is necessarily inexact.

At each college we asked heads of data processing to give us estimates of the costs associated with matriculation, as well as additional costs they thought they might incur if the full model were implemented. A few were able to give us fairly firm figures, but most could at best supply very rough estimates.

Similarly, it is not possible to estimate precisely expenditures for administration of matriculation, because administrative expenditures appear in different parts of the budget at different colleges. For example, at some colleges, counseling administration is handled by a dean of counseling or a department chair, and these administrative expenditures are reported as part of counseling activities. Elsewhere, this responsibility is assumed by a dean of students, and these expenditures are reported as part of college administration. Our separate estimate for administration includes only expenditures at the level of dean of student services; they do not reflect administrative expenditures included in admissions and records or guidance and counseling. Hence, if one is interested in actual expenditures for this particular function, our estimate of existing expenditures for "administration" is understated. Nor is it proper to compare these expenditures across colleges. This lack of comparability, however, has no effect on our estimate of total existing expenditures for matriculation, which includes expenditures for administration regardless of where they occur.

The data on existing expenditures may be found in Appendix C. With the exception of estimates for expenditures on data processing, the figures for existing expenditures for admissions and records and guidance and counseling are reliable. Colleges routinely budget these separately. As noted, there are some problems of comparability because of the way administrative expenditures are treated. Much to our surprise, the colleges we visited were able to specify in great detail who spent time on orientation and testing. Combined with reliable information on salary schedules and benefits, we are reasonably confident of our estimates for expenditures for orientation and testing.

In summary, the data are better than we expected at the outset of the study. As long as one is willing to tolerate errors of, say, plus or minus ten percent, the estimates provided here should provide a good first attempt at gauging the statewide cost of matriculation. The figures should not be used, however, to estimate costs at any particular college. As we have emphasized repeatedly, local circumstances differ greatly. How local colleges would fare is ultimately an issue of allocation of the statewide resources available for matriculation -- a topic beyond the scope of this study.

COST BY COMPONENT

A spreadsheet simulation model was developed to estimate the total and net

operating costs of each component of matriculation. The tables displaying the results list the various assumptions and data elements used in the calculations.

Admissions and Records

Net costs for admissions and records are estimated to be about $4.6 million dollars (Table 4) to provide additional clerical support, additional institutional research and monitoring, and programming time. Although this estimate of net costs is reliable, the estimate of total expenditures should be used cautiously. Just as most colleges do not charge back expenditures for data processing, many do not do so for printing and postage. As our estimates for printing and postage are derived from the colleges' budgets for admissions and records, they do not include expenditures that are not charged back.

This omission has no effect on the net cost of admissions and records, because we are assuming that existing expenditures for printing and postage are adequate, regardless of where they appear in local budgets. Hence, there was no need to obtain greater precision for these estimates. Increasing expenditures for postage and printing to reflect expenditures not charged back would also increase existing expenditures by the same amount. Thus, they would cancel each other in the calculation of net cost.

Table 4
ADMISSIONS AND RECORDS
DATA PROCESSING AND INSTITUTIONAL RESEARCH

Salaries and benefits	30,446,247
Supplies	645,138
Printing	568,095
Postage	254,843
Data processing equipment leases	5,041,632
Other data processing	16,492,882
Other	1,243,903
Additional staff	2,188,251
Additional institutional research/monitoring	3,330,101
Additional data processing	997,920
COST ESTIMATES	
Total Statewide cost	61,209,012
1982-83 Expenditures	- 56,583,548
NET COST	4,625,464

Orientation

We estimated the total cost of orientation to be about $3.2 million, including $310,000 for preparation (Table 5). This amounts to about $5 per student oriented. As the colleges are now spending approximately $1.2 million on orientation, the net cost for this component is about $2 million dollars.

Table 5
ORIENTATION

ASSUMPTIONS		
Preparation Time		
1 day for each counselor		210
1 day of a dean's time		250
Staff costs per session		
2 hours of a counselor		66
1 hour of a technician		15
1 hour of a student worker		4
16 hours clerical		160
Supplies per student		2
Session length (minutes)		60
Students per session		100
Average number of counselors per campus		13
Students Served		646,583
COST ESTIMATES		
Preparation time per campus		2,927
Cost per session		445
Statewide Costs		
Preparation (106 campuses)		310,260
Orientation Sessions		2,878,912
Total Cost		3,189,172
Cost Per Student Oriented	$4.93	
1982-83 Expenditures		- 1,224,431
NET COST		1,964,741

Testing

Testing would cost about $3 million, or about $4.60 per student tested. Again it should be stressed that this is an average figure. Costs per student would be higher for handicapped students and students with limited English proficiency, lower for other students. As the colleges are currently spending about $400,000 for testing, the net cost would be approximately $2.6 million.

Table 6
TESTING

ASSUMPTIONS		
Cost of each test		2.00
No. of tests administered		2
Length of each test (minutes)		60
Students tested per session		50
Test administration per hour		10
Scoring costs per test		0.08
Number of students tested		646,583
COST ESTIMATES		
Cost per student tested	$4.57	
Total Costs Statewide		2,952,731
1982-83 Expenditures for Testing		- 392,497
NET COSTS		2,560,234

Pre-Registration Counseling

Providing individual counseling to all applicants prior to registration would cost about $21.2 million. If counseling were limited only to those registering, this cost would decrease to approximately $17 million. The cost of a counseling session, and therefore the cost per student, would amount to about $26. As it was not possible to separate existing expenditures for counseling into pre- and post-registration categories, the net cost of counseling was calculated after determining the cost of post-registration counseling.

Table 7
PRE-REGISTRATION COUNSELING

ASSUMPTIONS		
FTE Counselor plus support		38,020
No. of hours worked per day		6.36
No. of days worked per year		180.71
Percent time spent in direct student contact		75.00
Length of typical counseling session		30
No. of students counseled per session		1
No. of applicants not exempt		808,229
No. of registrants not exempt		646,583
Total counseling hours (all applicants)		404,115
Total counseling hours (registrants only)		323,292
Total FTE counselors needed (applicants)		469
Total FTE counselors needed (registrants)		375
Supervisory Cost per counselor		6,930
Supplies cost per counselor		380
COST ESTIMATES		
Cost per counseling session	$26.29	
Cost per student counseled	$26.29	
Total Statewide Cost (All applicants)		21,251,599
Total Statewide Cost (Registrants only)		17,001,279

Post-Registration Counseling

The matriculation model would require that all undecided students, all students in remedial courses, and all students on academic probation receive 30 minutes of individual counseling per semester. In addition, it would provide other students (labeled "continuing" below) an hour of group counseling in groups of four. This level of counseling for continuing students is equivalent to half of continuing students requesting an individual 30 minute session. Presumably colleges would be free to determine how to counsel continuing students, choosing between group counseling, voluntary individual counseling, or a mix of the two.

Providing this level of counseling would cost about $44 million (Table 8). Individual counseling would cost about $26 per student; group counseling would cost half this amount, or about $13 per student.

Table 8
POST-REGISTRATION COUNSELING

ASSUMPTIONS		NO. OF STUDENTS
FTE Counselor plus support	38,020	
No. of hours worked per day	6.36	
No. of days worked per year	180.71	
Percent time spent in direct student contact	75.00	
Length of typical counseling session	30	
No. of students counseled per session	1	
Time for undecided students (minutes)	30	874,962
Time for students on academic probation (minutes)	30	290,947
Time for remedial students (minutes)	30	200,000
Time for continuing students (minutes)	30	634,004
Percent of continuing students requesting counseling	50	
Total Number of counseling hours	841,456	
Total FTE counselors	976	
Supervisory cost per counselor	6,930	
Supplies cost per counselor	380	
COST ESTIMATES		
Cost per student counseled	26.29	
Total Statewide Cost	44,250,515	

The combined cost of pre-registration and post registration counseling would be about $67.5 million if pre-registration counseling were provided to all applicants and $61.3 million of it were limited to registrants only (Table 9). As the colleges presently spend about $44 million on counseling, the net cost of all counseling would be about $21.5 million (applicants) or $17.3 million (registrants only).

Table 9
COST ESTIMATE SUMMARY -- PRE- & POST-REGISTRATION COUNSELING

Pre-registration counseling (all applicants)	21,251,599
Post-registration counseling	44,250,515
1982-83 expenditures	43,928,829
NET COST	21,573,285
Pre-registration counseling (registrants only)	17,001,279
Post-registration counseling	44,250,515
1982-83 expenditures	43,928,829
NET COST	17,322,965

SENSITIVITY OF THE ESTIMATES

The model presented here estimates the total cost of matriculation as $131,907,081 (with pre-registration counseling for registrants only). Subtracting from this sum our estimate of existing expenditures of $105,433,677 for matriculation in 1982-83, the model estimates that net cost of matriculation as conceived by the Task Force as $26,473,404. These estimates, however, are based on a number of important assumptions about the number of students served, the cost of an FTE counselor, and workloads. How sensitive are the estimates to these assumptions?

Table 10 displays the changes in total costs of matriculation from changing three variables by plus or minus 5 percent. If the number of students enrolled in community colleges were to be 5 percent greater than the number enrolled in 1982-83, total costs of matriculation would increase 2.3 percent to $134,501,438. Conversely, if enrollments declined by 5 percent, total costs would be reduced by 2.3 percent to $128,862,904. Similar changes of plus or minus 5 percent in the cost of a counseling FTE and support and in the percent of student contact time available from counselors produce changes in the estimate of total costs of from 2.0 to 2.5 percent. These estimates of total costs, then, are relatively insensitive to changes in the underlying variables affecting their calculation.

Table 10
SENSITIVITY OF TOTAL COSTS OF MATRICULATION
EFFECTS OF A CHANGE OF PLUS OR MINUS 5 PERCENT

Variable	+5%	-5%
Total enrollment	134,951,177(+2.3%)	128,862,904(-2.3%)
Cost of a counseling FTE and support	134,501,438(+2.0%)	129,312,667(-2.0%)
Counseling contact time	128,976,789(-2.2%)	135,145,765(+2.5%)

Estimates of net costs, however, are much more sensitive. Table 11 displays the effects on net costs of changes of plus or minus five percent in the four critical variables used affecting the calculations of net costs -- enrollment, cost of a counseling FTE, contact time, and existing expenditures. In this case changes of plus or

minus 5 percent produce changes in the estimate of net costs ranging from -19.9 to +19.9 percent, in the case of estimates of existing expenditures, and -11.5 to +12.2 percent for the other three.

Table 11
SENSITIVITY OF NET COSTS OF MATRICULATION
EFFECTS OF A CHANGE OF PLUS OR MINUS 5 PERCENT

Variable	+5%	-5%
Total enrollment	29,517,524(+11.5%)	23,429,227(-11.5%)
Cost of a counseling FTE and support	29,067,761(+9.8%)	23,878,990(-9.8%)
Counseling contact time	23,543,112(-11.1%)	29,712,088(+12.2%)
Existing expenditures	31,745,088(+19.9%)	21,201,720(-19.9%)

Why are the estimates of net costs so sensitive to changes in an assumption when estimates of total costs are not? This increase in sensitivity occurs because a change in a variable affecting total costs does not affect the estimate of existing expenditures. For example, if the cost of a counseling FTE increases 5 percent, total costs will increase 2.0 percent, or $2,594,386. Existing expenditures, which are estimated on the basis of actual budgets, are not changed by this change in the cost of a counseling FTE. Consequently, net costs are increased by the full amount of the change in total costs. Because net costs are small compared to total costs, a fixed amount will represent a much greater percentage of net costs than of total costs.

ONE-TIME COSTS

At each college we visited we asked those in charge of the different components of matriculation whether they would incur any one-time costs to implement matriculation. The only significant item turned out to be data processing. Regardless of the capacity of their existing computer system, all of the colleges would require additional terminals for counselors to be able to electronically access and monitor students files. Additionally, many colleges are at the limits of their present computing systems. While they have the necessary software to implement matriculation, they would require additional storage or other upgrades to increase processing speed. Still other colleges would require additional software to implement a fully automated matriculation system.

Most of the colleges were unable to estimate what additional hardware and software they would require or what it would cost. From a few colleges we were able to obtain some rough figures. One college with a well developed data processing system already in place estimated that to provide additional terminals for counselors would require from $1,000 to $3,000 per terminal, the exact amount depending on whether the additional terminals were centrally located to economize on the cost of running wires and providing hardware support. This same college also estimated that it would cost from $60,000 to $100,000 to increase the capacity of its system by 25 percent. Such an increase would permit 30 to 40 more active users of the system at any one time. About 10 of these new users might be counselors or personnel in admissions and records.

If we assume, then, that as little as a fourth of this increase in capacity (10/40) might be necessary to implement matriculation, then at the very least, this college would incur a one-time outlay of $15,000 for increased capacity ($60,000/4) and $10,000 for additional terminals (10 x $1,000), for a total of $25,000. On the other hand, if this usage represented a third of the capacity increase (10/30), the cost were as high as $100,000, and terminals and installation cost $3,000 each, then one-time costs would increase to about $63,000 ($100,000/3 + 10 x $3,000). If we took the midpoint of this range from $25,000 to $63,000, a one-time outlay of $44,000 might be required at this college of about 10,000 students per semester to implement matriculation.

If this college were representative of the needs throughout the system, then a cost of $44,000 per 10,000 students enrolled each semester would amount to about $5.5 million statewide. We obtain this figure by first dividing total fall and spring enrollments for 1982-83 by 2 (2,499,842/2 = 1,249,921) This figure divided by 10,000 yields 124.99, which when multiplied by $44,000 yields $5.5 million. This averages $51,887 per campus ($5.5 million/106).

Not all colleges, however, would require this amount. Those with excess computing capacity would need terminals only. On the other hand, some colleges would require much more than this average amount. One college we visited with a semester enrollment of about 20,000 students had recently received a low estimate of $236,500 to purchase and install and HP 3000 Series 48, capable of running the software that has been developed by Santa Rosa College and the "HP Consortium" for admissions and records, budgeting, and accounting. Probably no more than a few colleges throughout the system would need to purchase a complete computer system to implement matriculation.

This much is clear. Computing capacity varies greatly among the colleges, and it makes little sense to allocate resources for purchasing hardware and software on a per student or per campus basis. Therefore, one approach would be to establish a separate computer fund of, say, $5 million to which the colleges could submit proposals. A group of experts from the colleges could be selected to evaluate, rank, and select proposals for funding. This group should include people familiar not only with the technical aspects of data processing but also computer applications in counseling and admissions and records.

COST SAVINGS

We have estimated the net operating cost of matriculation at about $26.5 million. This amount represents about a 1.7 percent increase in current expenditures of $1.54 billion budgeted for 1982-83. Is it worth it? We had hoped to be able to say something about the benefits of matriculation from our site visits, but not really knowing what the effects of matriculation will be, it was not possible to estimate benefits. This is an issue that will require careful study as matriculation is implemented.

One can, however, speculate. During our site visits, we were struck by the large amount of "churning" that appears to exist within the system. We heard that as many

as half of those applying to community colleges do not register. Of those who register, 15 to 20 percent are gone by first census. Of those who complete a semester, as many as 40 percent do not return the next term.

There are, of course, reasonable explanations for some of this lack of retention. Students apply to more than one school. College life or the content of specific courses may not live up to students' expectations. Many students want only one course. Others, for work or family reasons, must interrupt their education. Nevertheless, turnover in the colleges is very high.

Processing applications for those who do not register is wasteful. So is providing instruction for students who leave soon after registration or before completing a term. If students leave and do not return because they have chosen courses that do not fit with their abilities and interests, this too is wasteful of their time and public money.

How much of the existing churning can truly be regarded as wasteful is not known. Indeed, answering such a question is a study in itself. But suppose that as few as 10 percent of those now enrolled in community colleges (about 250,000 students) are improperly placed so that their time and the public resources spent on them is in effect wasted. California spent in 1982-83 about $615 per student per semester enrolled in community colleges. If matriculation were able to properly place no more than 20 percent of these hypothetically misplaced students, it would more than pay for itself (.2 x 250,000 = 50,000 x $615 = $30.7 million).

Finally, if matriculation improves retention, it will produce another form of savings for colleges. Presently, many colleges are struggling to maintain their existing levels of average daily attendance (ADA), which directly affects their levels of funding. Some colleges have experienced actual declines in ADA, while others have gone to great length (and expense) to attract sufficient numbers of students to hold ADA at maximum levels. If students were less prone to leave community colleges, staff time and other resources could be put to more productive uses than trying to maintain ADA.

V. CONCLUSIONS AND RECOMMENDATIONS

In this last section we discuss our conclusions about the cost of matriculation and present our recommendations concerning how matriculation should be implemented.

THE COST OF MATRICULATION

Operating costs

Based on the assumptions described in the previous section, the simulation model developed for this study estimated that implementing statewide the matriculation model, as presently conceived by the Task Force, would cost $131.9 million (with pre-registration counseling limited to registrants only). Given that an estimated $105.4 million was spent on matriculation-related activities in the colleges during 1982-83, the net cost of matriculation would be $26.5 million over and above what was spent in 1982-83.

It is more appropriate, however, to talk about a range of estimates than a single estimate. The net cost is very sensitive to small changes in assumptions about the number of students enrolled, the cost of a counseling FTE, and the percentage of time counselors spend in direct contact with students. It is also very sensitive to the estimate of the amount spent by colleges on matriculation in 1982-83. On the basis of our analysis of the sensitivity of the estimates to these factors and the amount by which the assumptions and estimates might be off, we estimate that the actual net cost of implementing matriculation statewide (assuming pre-registration counseling were limited to registrants only) would be between $22 and $32 million.

The difference between $22 and $32 million is not insignificant. Nevertheless, we hestitate to try to be more precise because of the uncertainties described above. It may be recalled that before this study, it was not known whether the net cost of matriculation would be $15 million or $150 million. We have narrowed this range considerably. We can now say that the matriculation model as currently designed would not cost $150 million, nor even $50 million. It very likely would cost more than $20 million and less than $40 million. On the basis of data collected and analyzed so far, we can say fairly confidently that matriculation would cost about $27 million, plus or minus 20 percent.

What would this mean for the colleges? Overall, it would mean approximately a 25 percent increase in expenditures for matriculation over what was spent in 1982-83. Among the various components of matriculation, expenditures for admissions and records would need to be increased about 8 percent, expenditures for counseling about 39 percent, expenditures for orientation about 160 percent, and expenditures for testing and assessment about 653 percent. It is important to keep in mind that these are "average" figures. Some colleges would need greater percentage increases in total and for the various components, and some would need less.

One-time costs

Data processing produces the only significant one-time cost for implementing matriculation. The additional resources required to purchase new hardware and software proved very difficult to determine. A very rough estimate puts the figure at $44,000 per 10,000 students enrolled, or $52,000 per campus.

Indirect costs

It is important not to look at matriculation in isolation when considering the cost, for matriculation will affect other activities and services within the colleges, and these will have cost implications. For example, among the expected benefits of matriculation are improved placement and increased retention. If matriculation improves the placement of students, resources will no longer be wasted on students taking courses for which they are not prepared or which do not meet their needs. Furthermore, any gains matriculation produces in the rates of student retention will permit more productive use of staff time and other resources that are now devoted to keeping enrollments up to maintain ADA.

Matriculation can also be expected to affect the demand for student support services. Improved identification of students with special needs would probably increase the numbers of students referred to handicapped services, for example, or tutoring. This would place additional burdens on these services that they may not be able to absorb without additional resources. On the other hand, improved assessment may diminish the number of students improperly placed in courses and thus actually reduce the demand for tutoring. These indirect costs and benefits of matriculation should be assessed in the early stages of implementation. This is discussed further below.

IMPLEMENTATION

There are many implementation issues associated with matriculation. Statewide implementation of the matriculation model will require detailed planning and coordination at the state, district, and college levels. Here we do not attempt to deal comprehensively with these issues, but focus instead on implementation issues directly related to the cost and funding of matriculation, and make recommendations in these areas.

Initial scale

Matriculation could, of course, be implemented statewide immediately. There are, however, still uncertainties about the costs (both direct and indirect) associated with matriculation and even greater uncertainties about the benefits. While the widespread support found for matriculation is based on the belief that substantial benefits would be realized, there has as yet been no systematic documentation of the benefits. Thus, it would not be cost effective to proceed with immediate statewide implementation yet.

It would also be possible to implement only selected components of

matriculation, such as testing and assessment. This approach, while certainly less costly, ignores the integrated nature of matriculation. Testing is valuable only if there are also sufficient resources to interpret test results and improve course placement and referral to necessary support services. Similarly, beefing up counseling makes little sense if counselors are not also given the assessment and monitoring tools necessary to improve their effectiveness. Furthermore, this approach would provide no opportunity to evaluate systematically the impact of the matriculation process, as the process would not be complete. Therefore we would advise against piecemeal implementation of matriculation. The best approach to assessing the overall impact of matriculation, while minimizing the initial outlay, is to select a limited number of colleges where the complete model may be tried on an experimental basis.

Recommendation: The state should proceed with matriculation on a pilot basis at a group of ten to twenty colleges. During the pilot, particular attention should be paid to improving the estimates of costs, specifying workload standards, and calculating existing expenditures.

Selection of pilot colleges

Which colleges should be selected to participate in a pilot project? The least expensive approach to implementing matriculation would argue for selecting colleges that already have well developed matriculation systems in place, strengthening their weakest components while taking advantage of the investments they have already made. This approach has the additional advantage of determining more precisely the costs and the workloads most appropriate for matriculation. There is a major disadvantage to this approach, however. By selecting only colleges with well developed systems, the impact of matriculation will be the hardest to detect. Detection will be made even more difficult because implementation will coincide with the imposition of tuition. Thus, if retention improves somewhat, how will one know whether this improvement is attributable to matriculation or to tuition's discouraging the "casual" student? By including in the study some colleges that have very little in the way of an existing matriculation system, the effects will be far easier to detect.

Recommendation: The sample of colleges selected for the pilot should include some colleges that do not yet have well developed matriculation systems.

Evaluation

Matriculation is expected to have an important impact on course placement and retention of students. The precise effects, however, are likely to vary from college to college, and it is important to have evidence on which processes appear to work best in which types of colleges. It is important, therefore, to develop an experimental design of implementation so that a reasonable range of implementation practices is really put to the test.

Recommendation: Evaluation should be a central feature of the pilot. The Chancellor's Office should begin immediately to design the evaluation process, with the first step being deciding precisely what it wants to learn during the implementation

experiment. In addition, the implementation act of the legislature should specify that the state will pay an adequate amount to assess the results of the different forms of implementation.

Allocation of funds available for matriculation among colleges

While this study has produced estimates of the resources needed to implement matriculation, there remains the important issue of how these resources are to be allocated. Different colleges have invested different amounts of their existing resources in matriculation. To the extent that those investing higher amounts per student in matriculation have done so because they enjoy greater resources per student overall, it could be argued that simply funding the net cost of matriculation would be sufficient. But to the extent that some colleges with equal amounts of total resources per student have invested different amounts in matriculation, funding the net cost of matriculation will, in effect, penalize those who have already made greater commitments to matriculation. Under these circumstances, it would be fairer to reimburse colleges for expenses they are already incurring. Doing so, of course, would increase the net cost of implementing matriculation.

Incentives during the phasing in period need to be considered too. If the colleges believe that the state is going to meet marginal costs only, any college not in the pilot group that is presently spending substantial resources on matriculation would have an incentive to reduce its level of effort sharply. Similarly, any college with few resources now being devoted to matriculation would have no incentive to increase its effort now. To avoid the first situation, one possibility would be for the state to direct the colleges not to reduce their expenditures on matriculation during the phasing in period, but this would be somewhat heavy handed. Another possibility would be for the state to express an intent to pay for statewide average matriculation costs per student as calculated for 1982-1983 (adjusted for cost of living increases).

This would recognize that existing state grants have properly served to pay some portion of existing expenditures for application, counselling, and so on. On the other hand, colleges that are now spending above state average could see that they would be able to shift some matriculation costs to other activities under full implementation and colleges that are spending less than state average would have no incentive against moving up to the average -- indeed, it would be prudent for them to do so to ease the impact of ultimate implementation.

Recommendation: Since allocation issues pose difficult and potentially very controversial decisions, a study should be conducted concurrently with the pilot project to develop and evaluate alternatives for allocating funds for matriculation.

Allocation of funds available for matriculation among components

How much discretion should colleges be given in allocating funds among the various components of matriculation? Some colleges, for example, if given additional resources for matriculation would prefer to have them spent on counseling. Others would rather put the money in testing, even if their counseling services remained weak. Some colleges believe strongly in the benefits of group counseling prior to registration

and would prefer to do this and use any resources saved to strengthen post-registration counseling.

Recommendation: Given the great diversity that exists among California Community Colleges, it is crucial that wherever possible the implementation of matriculation be "permissive", allowing local colleges extensive discretion and flexibility in making each of the components of matriculation operational.

Start-up costs

As indicated earlier, data processing produces the only significant one-time cost for implementing matriculation. However, since data processing capacities and needs differ greatly among colleges, it is not sensible to allocate money to cover these costs on a per student or per campus basis.

Recommendation: The state should establish a separate fund to which colleges may submit proposals for purchasing hardware and software necessary to implement matriculation. A group of experts should be selected from the colleges to evaluate, rank, and select proposals for funding. This group should include people familiar not only with the technical aspects of data processing but also with computer applications in counseling and in admissions and records. The initial size of this fund should depend on the number of colleges chosen for the pilot project. If matriculation were to be implemented statewide, we estimate that roughly $5 million would be needed to support this fund. This figure should be reevaluated during the pilot.

In summary, fully implementing matriculation on the scale envisioned by the Task Force is feasible, would be relatively inexpensive, and would be cost-effective if the placement of no more than a small percentage of all students enrolled were improved. With sufficient attention to evaluation and to developing a fair system for allocating resources for matriculation, proceeding with implementation on a pilot basis would be prudent policy.

Appendix A

ENROLLMENT DATA -- 1982-83

	NEW		NEW TRANSFERS		NEW TOTAL
	Fall	Spring	Fall	Spring	
Orange Coast	5,551	2,407	3,088	2,768	13,814
Santa Monica	3,617	1,187	2,860	1,496	9,160
Diablo Valley	3,916	1,191	2,042	1,508	8,657
Laney	2,575	2,199	2,085	1,801	8,660
LA Harbor	2,291	915	1,457	698	5,361
Southwestern	2,187	2,847	1,029	0	6,063
Sierra	2,384	1,453	1,135	963	5,935
Hartnell	1,484	451	513	170	2,618
LA Mission	1,215	727	946	666	3,554
Compton	886	594	336	328	2,144
Mendocino	823	797	495	596	2,711
Canyons	804	472	460	457	2,193
TOTAL	27,733	15,240	16,446	11,451	70,870

	TOTAL		TOTAL		
	Fall	Spring	ANNUAL	%NEW	PROBATION
Orange Coast	27,191	26,628	53,819	26	13,338
Santa Monica	23,001	20,264	43,265	21	6,720
Diablo Valley	19,286	18,085	37,371	23	2,176
Laney	12,803	13,393	26,201	33	758
LA Harbor	12,578	10,350	22,928	23	1,186
Southwestern	12,333	12,596	24,929	24	4,048
Sierra	10,006	10,018	20,024	30	1,740
Hartnell	7,052	4,505	11,557	23	930
LA Mission	4,589	4,327	8,916	40	83
Compton	4,564	4,491	9,055	24	1,520
Mendocino	3,564	4,388	7,952	34	0
Canyons	3,487	3,754	7,241	30	378
TOTAL	140,459	132,799	273,258	26	32,877

Appendix B

COUNSELING COST DATA

	FTE COST(a)	DAYS/YR	HOURS/DAY	%CONTACT	COST PER CONTACT HOUR
Orange Coast	41,251	175	6	95	41
Santa Monica	39,308	177	6	90	41
Diablo Valley	36,439	177	6	90	42
Laney	33,394	176	6	75	42
LA Harbor	37,321	197	7	85	32
Southwestern	36,666	197	8	80	29
Sierra	35,340	177	6	75	44
Hartnell	35,698	176	7	70	41
LA Mission	37,321	197	7	75	36
Compton	32,615	177	6	92	33
Mendocino	31,874	180	8	85	26
Canyons	36,152	177	7	80	36
Student Weighted Sample Average	37293.00	180.71	6.36	85.44	38.72

Student weighted counselor FTE salary corrected for differences in length of school year and day $38,020

(a) average salary and benefits for 1 FTE counselor plus average salary and benefits for .25 FTE clerk.

Appendix C

EXPENDITURES BY OBJECT

	A&R	ORIENT	TEST	COUNS	ADMIN
Orange Coast	779,960	0	0	980,482	0
Santa Monica	819,787	18,475	5,100	553,987	22,883
Diablo Valley	(a)	30,764	0	524,758	47,764
Laney	668,318	12,025	0	590,284	39,202
LA Harbor	653,202	15,666	5,557	431,654	34,835
Southwestern	681,356	16,362	5,610	620,264	37,978
Sierra	569,741	25,689	3,415	256,261	37,200
Hartnell	308,089	5,805	1,845	253,222	36,468
LA Mission	228,562	5,744	3,856	187,185	43,804
Compton	283,622	0	8,694	235,235	22,211
Mendocino	118,270	1,622	5,950	99,882	24,898
Canyons	266,133	1,688	2,876	68,555	13,951
Sample Expenditure per student	22.79	0.49	0.16	17.57	1.32
Statewide estimate	56,583,548	1,224,431	392,497	43,928,829	3,304,372

TOTAL EXPENDITURES

Orange Coast	1,760,442
Santa Monica	1,420,232
Diablo Valley(a)	603,286
Laney	1,309,829
LA Harbor	1,140,914
Southwestern	1,361,570
Sierra	892,306
Hartnell	605,429
LA Mission	469,151
Compton	549,762
Mendocino	250,622
Canyons	353,203
Sample Expenditure per student(b)	42.87
Statewide estimate	105,433,677

(a) Data processing center serves elementary and secondary districts in the county; hence, data processing expenditures comparable to other community colleges could not be derived, and expenditures for admissions and records at Diablo Valley have been excluded from statewide calculations.

(b) Excludes Diablo Valley

APPENDIX F

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